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Silicate of Soda for sealing . . . . . 1 gallon, 60c; ½ gallon, 35c; 1 quart, 20c

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	No. in cart.	Per cart.	No. in cart.	Per cart.	Ship. Wt.
2½-lb. cans (4x4 9-16)	12	$0.55	100	$3.75	35 lbs.
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10-lb. pails (6¼x7⅛)			50	4.75	45 lbs.

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Perfection Friction Power Drive equipment for the above extractors at small extra cost.

Every item in the "STANDARD" line sold on a money-back guarantee of satisfaction. ASK YOUR DEALER FOR "STANDARD" GOODS—if he does not have our equipment, mail orders to us and we will ship immediately.

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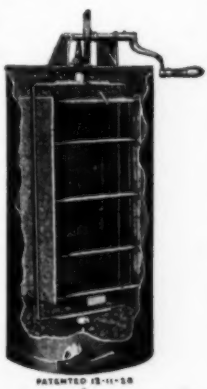
No. 7—12x16" pockets, wt. 30 lbs..... 11.40



"Back-Lot" Two-frame (as shown at left) is the best and lowest-priced 2-frame extractor built. Quickly and easily extracts 100% of the available honey from 2-frames at once. Rigid comb pockets. Ball bearing equipped. Highly recommended for the smaller producer and for unfinished comb sections.
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Honey Markets

Information from Producing Areas (first half of July).

SOUTHERN CALIFORNIA—Although the main honey flows have been over for several weeks, bees along the coast are still gathering a little surplus from wild buckwheat, sumac and eucalyptus. Tar weed is yielding well in some sections. The flow from lima beans is good and there has been considerable movement of colonies to the bean fields. Mountain honey plants are good for this time of year. At present bees are in good condition, but many colonies will run down unless fed. Due to the short crop, however, beemen as a rule are not in a position to do much feeding. One estimate received places the orange honey crop of southern California at 21,000 cases or slightly less than half of that of last year. It is reported that the alfalfa flow in the Imperial Valley may amount to 75 per cent of that of last year. Although demand is only moderate for domestic sale, prices are holding firm and in fact are advancing due to the shortage. A limited amount of exporting is being done, but principally on previous orders, as present prices are generally too high for export demand. Beekeepers are being paid for large lot sales about as follows: Water white sage, 11-11½c; occasional sale, 12c; white sage, 10-10¼c; some sales low as 9c; white to water white orange, 10½-11c; occasional sale, 11¼c; white orange and sage mixed, 10⅜-10½c; occasional car, high as 11½c; light amber sage and buckwheat, 8½-9c; Imperial Valley light amber alfalfa, 7-7¼c; few case white orange comb sold at $4.15 per case.

CENTRAL CALIFORNIA—The recent unusually hot weather has cut short the nectar flow for the time being. Large buyers are making occasional inquiries, but beekeepers have little to offer.

NORTHERN CALIFORNIA—Bees are working on thistle bloom, in which the nectar secretion has been scanty so far, and the crop outlook is not encouraging Some beekeepers are extracting holly and cascara honey in the foothills. Condition of bees rather spotted. No important sales reported.

INTERMOUNTAIN STATES: West of Continental Divide—Recent warm weather has pushed growth of vegetation, and although the season is several weeks late, prospects for a normal honey flow are fairly good except in parts of northern Utah and in western Colorado. Possible shortage of irrigation water is causing concern in Utah. Many colonies were not built up to take advantage sufficiently of the flow. Sweet clover plants are short this year. Much alfalfa was cut before it blossomed. Windy days are said to be wearing the bees out. Extracting will start soon. East of Continental Divide—In the Arkansas Valley of Colorado conditions are very favorable with ample bloom and good nectar flow, and honey production is ahead of normal at this date. San Luis Valley has had a normal bloom and nectar flow since the latter part of June, but for the past week the weather has been mostly cool and cloudy with light local showers which have delayed honey gathering. However, rains are not sufficient to benefit crops, and the drouth not only continues unbroken throughout the state but is assuming serious proportions in many districts. In northern Colorado conditions are about normal at present, but irrigation water is steadily becoming more scarce. Crop prospects are not encouraging in Montana, but the outlook in Wyoming is for a good crop. Swarming is about over. Remaining stocks of honey are chiefly concentrated in co-operative hands. Recent carlot sales of white sweet clover and alfalfa reported at 6½-8c per lb., averaging around 7c per lb. Small pails of white sweet clover and alfalfa have sold at 10-12½c per lb. for extracted, and 12c per lb. for bulk comb. Some future contracts reported made with beekeepers for large lots of the 1929 crop at 6¾-7½c per lb. Beeswax, 28-32c per lb.

PLAINS AREA—North Dakota: The nectar flow from sweet clover and other bloom is actively on, and hives are gaining 4 to 5 lbs. per day in weight. The weather bureau reports the driest weather during June and July of any in the 48 years the Moorhead station has been in operation, but clover has not suffered much yet. Clover plants, however, are not so plentiful as formerly. South Dakota: The honey flow is on in earnest, and one beekeeper reports an 11-pound gain in a day on his scale hive. Iowa: Yellow sweet clover is about through blooming, and is being cut; but white sweet clover is in full bloom. Cold, rainy weather has hindered bees from working, but plant conditions are excellent, and with fair weather now the crop can easily be normal or above, and of fine quality. Basswood has bloomed, but yielded little nectar. Nebraska and Kansas: The honey flow has been intermittent due to alternating days of cool and hot weather without rain; but recent rains have been helpful, and may continue the flow from white and sweet clover for a couple of weeks longer. The quality is reported excellent. Some comb honey colonies reported working in the sixth super and one reporter estimates a crop of 200 pounds this year. Basswood has yielded nectar, but the flow is now over. Missouri: Colonies properly cared for are above the average in stores, making this a good season even if no more is gathered. Little old honey remains unsold. Few 60s white extracted sold at 9-11¾c per lb.; larger lots, 8c; small pails, 12½-13c per lb. No. 1 white comb brought $4.50-4.80 per case. Beeswax, 30-33c per lb.

From Producers' Associations

Present prospects for a large honey crop in Ontario are not particularly encouraging, but we hope that with recent rains conditions will improve materially. We are practically cleaned up on our 1928 honey except a quantity of dark grade honey, which we hope to dispose of before the new crop comes in. Export honey prices should be higher on this season's crop.—The Ontario Honey Producers' Co-operative, Ltd., A. G. Halstead, General Manager, Toronto, July 8.

TOO LATE FOR CLASSIFICATION

WANTED—Two or four frame reversible extractor. State make, size, condition and price. Fred Evans, Marydel, Md.

WHITE clover comb chunk honey, per case of six 5-lb. pails, $5.00; $9.50 per dozen; 10-lb. pails, $9.00 per six. Fancy white extracted, $9.00 per doz. 5-lb. pails. F. L. Barber, Lowville, N. Y.

CARNIOLAN QUEENS—We have the finest line-bred Carniolans to be had. They are very hardy, gentle, prolific, great workers and builders of very white comb; winter extra well and build up very quickly in the spring. Fifteen years' experience with them. Never have had any foul brood. Safe arrival and satisfaction guaranteed. Prices, untested, one to ten, $1.00 each; ten to twenty-five, 85c each. Breeding queens, $5.00. A. M. Middleton, Fort Edward, N. Y., R. F. D. No. 2.

FOR SALE—740 colonies bees, guaranteed disease free with full equipment for extracted and comb honey, all equipment of Root make. We desire to sell with crop on hives. Buyer can then leave for winter stores to his liking. Or we will sell any number of colonies to single buyer. We desire to close our entire outfit out here in the Platte Valley within the next 60 days. Our age and inability to handle heavy supers are the cause of giving up the business. We have kept on the job 34 years. J. W. E. Basham, R. F. D. 5, Kearney, Nebraska.

Monthly Report of Honey Producers

Early this month we sent the following questions to honey producers throughout the country: 1. What is the average yield per colony to date this season in your locality of (a) extracted honey? (b) comb honey? 2. How does this compare with the average yield for your locality? Give answer in per cent. 3. What portion of the entire crop of surplus honey does this represent in your estimation? Give answer in per cent. 4. At what price has honey been sold, or contracted for, if any, in large lots (carload or less) in your locality during the past month for (a) extracted honey, per lb.? (b) comb honey, fancy and No. 1, per case? 5. What are prices when sold to grocers in case lots of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy and No. 1, per case? 6. What is the retail price to consumers in your locality of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy and No. 1, per section? 7. How is honey now moving on the market in your locality? Give answer in one word, as slow, fair, or rapid. The answers received to the above questions are tabulated below:

State. Name.	Yld. per col. Ex.	Comb.	% Av. Yield.	%Total Crop.	Large lots. Ex.	Comb.	To grocers. Ex.	Comb.	Retail. Ex.	Comb.	Movement.
Ala. (W. D. Achord)	10		25	100					$.75		Slow
Ala. (J. M. Cutts)				100							
Ark. (Jas. Johnson)		10	50	50				$4.80	1.00	$.25	Slow
Cal. (L. L. Andrews)	5		12	100	.10½		$.85		1.00	.25	Rapid
Colo. (J. A. Green)	60		100	75			.60		.80	.20	Fair
Colo. (B. W. Hopper)	75	40	110	50	.10	$3.50	.55	3.50	.65	.20	Fair
Conn. (Allen Latham)							1.00	6.75	1.30	.40	Slow
Conn. (A. W. Yates)	60	56	100	75			.95	7.00	1.25	.40	Fair
Ga. (J. J. Wilder)	58	42	100		.08		.75		1.00		Fair
Fla. (C. C. Cook)	45		90	50	.06		.65		.85		Slow
Fla. (Harry Hewitt)				100			.60		.80		Slow
Ill. (A. L. Kildow)	50	40	75	60					.75	.20	Slow
Ind. (T. C. Johnson)	75	50	100	80			.80	4.80	1.00	.25	Fair
Ind. (E. S. Miller)	100	75	200	60			.80	4.80	1.00	.25	Fair
Ind. (Jay Smith)	50	30	125	50			.75	4.80	1.00	.30	Slow
Iowa (E. G. Brown)	50		50	25	.07		.75		1.00	.20	Rapid
Iowa (Frank Coverdale)	125		125	75				4.25		.20	Fair
Kans. (J. F. Garner)		60		75			.75	4.75	1.00		Slow
Md. (S. G. Crocker)	25	20	75	100			1.00	5.00	1.50	.35	Slow
Mass. (B. N. Gates)										.43	Fair
Mich. (I. D. Bartlett)	25		50	25			.60		.85	.30	Slow
Mich. (E. D. Townsend)	70		100	75							
Minn. (Floyd W. Ray)	80		110	50	.08½		.60		.75		Fair
Mo. (J. H. Fisbeck)	30		100	40			.80		1.00		Slow
Mo. (J. M. Romberger)	32	10	30	60	.10	2.50	.60	3.75	1.00	.20	Slow
Nev. (Geo. G. Schweis)	10		2						.75	.25	
N. Y. (F. W. Lesser)	60	30	150	60							
N. Y. (Geo. B. Howe)	50			75					1.00	.30	Fair
N. C. (C. S. Baumgarner)		30	100	75			1.00		1.25	.30	Fair
N. C. (C. L. Sams)	60	45	80	95			.90	4.75	1.25	.30	Fair
Ohio (R. D. Hiatt)	100	80	110	90			.90	5.00	1.15	.27	Fair
Ohio (F. Leininger)	150		125		.10	4.80					Fair
Ohio (J. F. Moore)	75		100	75			.80	4.80	1.00	.30	Slow
Okla. (Jos. Heusisen)	50		75	90							Slow
Okla. (C. F. Stiles)		40	110	85					.90	.25	Fair
Ore. (H. A. Scullen)	75		75	100			.70		.90		Slow
Pa. (Harry Beaver)	30	25	100	35			.65	3.50	.75	.20	Slow
Pa. (D. C. Gilham)	40	25	80	60			1.05	6.30	1.35	.35	Slow
S. C. (E. S. Prevost)		35	40	50			1.00	6.00	1.25	.35	Slow
S. D. (L. A. Syverud)	75	50	100	50			.65	4.50	.85	.25	Slow
Tex. (T. A. Bowden)	35		100	50			.60		.75		Fair
Tex. (J. N. Mayes)	20	20	50	50	.06	6.00	.50		.55		Slow
Tex. (H. B. Parks)	65		92	100	.09		.65		.75		Fair
Utah (M. A. Gill)	60	40	80	40			.50		.62½		Slow
Vt. (J. E. Crane)							1.00	6.00	1.25	.35	Slow
Va. (T. C. Asher)	25	20	40	100			.90	4.80	1.10	.25	Fair
Va. (L. N. Gravely)	30	20	50	40	.15		.75	4.75	1.00	.30	Slow
Wash. (G. W. B. Saxton)	15		5				.65	4.50	.75	.25	Fair
W. Va. (W. C. Griffith)	60	24	100	50			.75	5.25	.87½	.29	Slow
W. Va. (T. K. Massie)	10	60	110	80					1.00	.30	Slow
Wis. (E. Hassinger)	100		100	90			.70		.90		Slow
Wis. (Jas. Gwin)	75		100		.09		.70		1.00		Fair
Wyo. (Chas. H. Ranney)	20		90	20							

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"Canco" Cans and Pails, the best, packed in dust-proof cartons.	Per carton.
2½-lb. cans, 100 in carton	$4.00
5-lb. pails, 50 in carton	3.15
10-lb. pails, 50 in carton	4.65
5-lb. pails, 12 in reshipping case	1.00
10-lb. pails, 6 in reshipping case	.75

FIVE-GALLONS (60-LB.) CANS

We have them this year with the 2¼-inch opening, which are easier to fill and to empty. These cans are made from 107-lb. tinplate throughout, all seams are soldered. They are the best square cans on the market. Special prices on quantity orders. Strong wood case with cleated ends.

	1-9.	10-49.	50 or more.
1—60-lb. can in wood case	$0.70	$0.65	$0.60
2—60-lb. cans in wood case	1.10	1.00	.98
60-lb. cans in bulk, crated in lots of 20 or more cans			36c each

TALL OR DIAMOND "I" HONEY JARS

Special Tall, White, Clear Honey Jars:	
24/14-oz. jars in reshipping case	98c per case
24/8-oz. jars in reshipping case	75c per case
Diamond "I" Honey Jars:	
24/16-oz. jars in reshipping case	$1.10 per case
12/32-oz. jars in reshipping case	.80 per case

COMB-HONEY SHIPPING CASES

10-49 K. D. 24-section, 2" glass front	35c each
50 or more K. D., 24-section, 2" glass front	32c each

All necessary corrugated paper, drip paper, and nails included.
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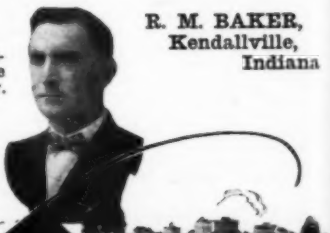

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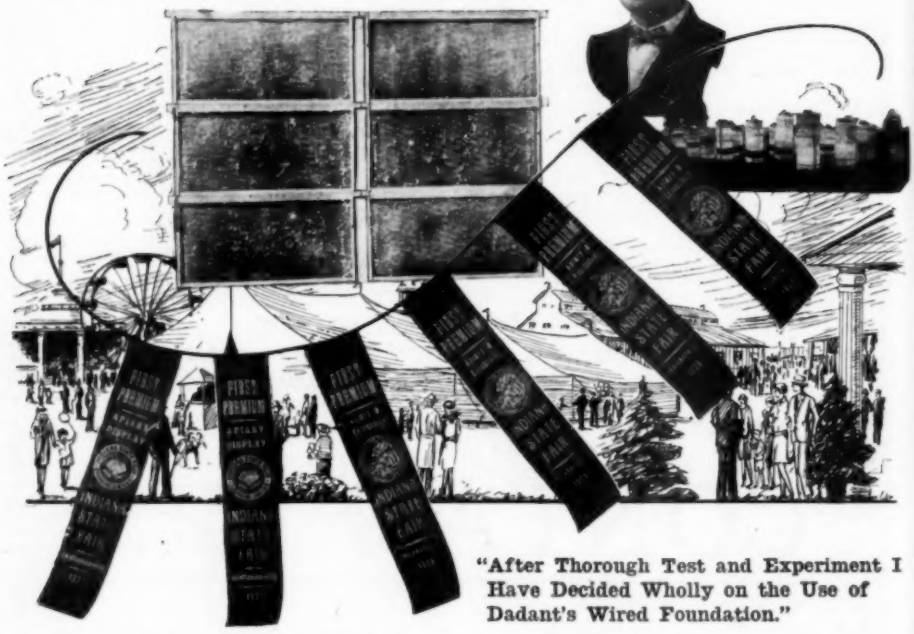

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"After a series of thorough tests and experiments, I have decided wholly on the use of Dadant's Foundation."

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Are your combs all that you want them to be? To call a comb "perfect" is saying a good deal, but so many of the users of Dadant's Wired Foundation say "perfect," when they tell of their results, that it is at least safe to say they are thoroughly satisfied.

After all, when a queen can lay worker brood all through a comb, from side to side and from top to bottom; when the most prolific queen can do her best and bees fill the hive, ready for the flow—what more can foundation do for you?

Ask the bees whether your combs are good or bad,
they will tell you every time

Dadant's Wired Foundation is the only reinforced foundation made entirely of pure beeswax.

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HAMILTON, ILLINOIS

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Gleanings in Bee Culture

August, 1929

Our Cornerstone

REMEMBER at all times that improved bee culture is our end and aim, and we trust no one will hesitate to give any facts from experience because they may tend to overthrow any particular person or "hobby." If any of our special plans don't work, or if anything we advertise has had its value overestimated, here in these pages is the place of all others to set the error right.—From A. I. Root's "Introductory" in the first issue of Gleanings in Bee Culture, Jan. 1, 1873.

Good Time to Fight Corn Sugar Bill Probably the most effective work that beekeepers can do now to fight the corn sugar bill and thus prevent the wholesale adulteration of honey later is to work through the local Farm Bureaus as suggested on page 425 of the July issue of this journal. This is so important that every beekeeper should take whatever time is necessary to do it regardless of how busy they are. There is no danger of any well informed farmer or organization of farmers endorsing legislation that would legalize the adulteration and misbranding of foods, thus transferring business from the farms to great factories, but there is great danger that the corn sugar people may be able to obtain statements favorable to corn sugar legislation from some of the officers of the American Farm Bureau Federation.

Crop and Market Conditions A bumper crop of unusually fine quality honey is now being harvested in the clover region. The yield appears to have been heaviest in portions of southern Michigan, Indiana and Ohio. The crop is light in the Gulf States, Arizona and California. It is too early to estimate what the crop will be in the western states but there is considerable complaint of a shortage of water for irrigation in some localities. In the irrigated region, Wyoming appears at present to have the brightest prospects, reports from other sections being somewhat discouraging. Good crops are being harvested in portions of Kansas, Nebraska and Iowa, but prospects are only fair for the Dakotas. Taking the United States as a whole, reports now indicate that the crop may be somewhat below normal in spite of the bumper crop in the clover region.

The greatest danger in marketing this season's crop is that there may be some panicky selling in the East, where the crop has been heavy. It should be remembered that the unusually fine quality of honey in the clover belt will stimulate consumption so that it should not be difficult to dispose of the big crop in this region at good prices.

Government Wants Samples of Honey The Carbohydrate Division of the Bureau of Chemistry and Soils, Washington, D. C., will make a thorough study of the diastase content of American honey. This is a part of the general program of a study of the constituents of honey by the Government in order that honey may be utilized to the greatest possible extent. But such a study is also desirable just now on account of the fact that the amount of diastase in honey is used as a criterion of its purity in Germany. Since the amount of diastase is affected by heating the honey above certain temperatures, this study may result in changes in the manner of handling honey. Samples from as many floral sources as possible will be analyzed. Therefore, Mr. Hambleton is asking that beekeepers send samples for analysis. The honey should, of course, be unheated, and the floral sources should be stated as accurately as possible, together with the time the honey was produced and extracted. Fresh comb honey is also wanted for this study. Those who are willing to help in this important work should send samples as soon as possible to the Bee Culture Laboratory, Bureau of Entomology, Washington, D. C.

Excess of Larval Food Not the Cause of Swarming

In the search for the cause of swarming, beekeepers long ago recognized the effect of a large proportion of young bees, too young to work in the fields. Swarming usually occurs at about the time the colonies have the largest proportion of young bees. It is more troublesome in localities such as the clover region where the colonies usually reach their peak in young bee population at about the beginning of the honey flow from clover, and it is least troublesome in localities where there is a dearth of nectar at the time the colonies have the largest proportion of young bees. Beekeepers have for years taken advantage of these well-known facts in applying swarm-control measures, but it is now well established that field bees crowded into the brood-chamber instead of working in the fields are as potent a factor in bringing on swarming as are the young bees.

Since swarming was traceable at least in part to a large proportion of young bees, the theory was set forth years ago that swarming is brought about by an excess of nurse bees, thereby bringing about an excess of larval food. This theory has become entrenched in beekeeping literature and is set forth from time to time by various writers.

If an excess of larval food were the cause of swarming, either an increase in the number of nurse bees or a decrease in the number of larvae to be fed should bring on swarming when other conditions are favorable. The fallacy of the theory, therefore, can easily be shown by taking away a part or all of the young brood during the swarming season. By taking away the larvae, there should be an excess of nurse bees and therefore an excess of larval food, which, according to the theory, would lead to swarming. However, colonies so treated seldom swarm. They will give up swarming even after queen-cells have been started in preparation for swarming. The Editor has tried this experiment on hundreds of colonies, always with the same result. In fact, it is one way of preventing swarming.

Since this theory is again being mentioned in beekeeping literature, the experiment was repeated on a number of colonies this season in the Editor's apiaries. To prevent a radical change of conditions as when making an artificial swarm, only a part of the brood was taken away at a time, doing this with the least possible disturbance. By taking away one or two combs of brood daily and substituting combs containing only sealed brood, many colonies that had started queen-cells in preparation for swarming give it up entirely and no colony treated in this manner swarmed. If there is ever an excess of larval food in a colony, it apparently has no effect whatever upon swarming. No doubt the bees are able to regulate the amount of larval food in accordance with their needs, and if there should be more than needed there are 60,000 or 80,000 bees in the colony that would like to have a taste of it. It would probably disappear as effectively as would an extra dish of ice cream in a large family on a hot day.

Excessive Swarming in Portions of Clover Region

In the southern portion of the white clover and alsike clover region, swarming was excessive this season. In that portion of the clover belt many colonies were in condition to swarm before the clover began yielding heavily and weather conditions were such that the field bees were kept in the hives so much of the time that swarming was the natural result. Farther north in the clover belt there was considerably less trouble from swarming, especially after clover began yielding heavily. In the Editor's apiaries, which are operated for comb honey, a large percentage of colonies started queen-cells in preparation for swarming early in the honey flow, but most of them gave it up when the recently-started queen-cells were destroyed. Too often when queen-cells are destroyed the colonies immediately start building new ones, but this season they were willing to give it up in most cases when the cells were destroyed and more super room given. This willingness to give up swarming in that particular locality was apparently brought about by the heavy honey flow which enticed the bees to the fields during the heat of the day, together with the fact that most of the nights were cool.

It was interesting to note that the colonies gave up swarming almost completely as soon as it became necessary to search longer for a load of nectar. While alsike was in full bloom, apparently the bees were able to obtain a load of nectar quick-

ly and return to the hive, since but few bees could be seen on the flowers and the hives seemed to be full of bees all day long. When alsike began to fail, the bees became thick on white clover and there were astonishingly few bees in the hives during the day, most of them being in the fields. While the bees filled the supers about as fast as before, it evidently required more searching to gather a load of nectar than when alsike was in its prime. With most of the bees in the field during the day, the colonies apparently forgot all about swarming. In this respect the irrigated regions of the West have a decided advantage since the field bees can work in the fields practically every day, and the nights are cool. Swarming is much less troublesome there than in the East.

Losses Through Swarming By clipping the queens and examining the colonies every ten days, it is possible to prevent entirely losing bees by swarming. Colonies may swarm in the absence of the beekeeper and lose their queens, but the bees return and are not lost, provided such colonies are taken care of within ten days or before any young queens can emerge and lead out a swarm. However, while there is no loss of bees, there is often a loss of honey through less energetic work incident to swarming, especially in comb-honey production and during a season like this has been in the clover region.

In the Editor's apiaries the best yields this season are from colonies that went through the season without attempting to swarm. Colonies that were shaken to make artificial swarms forged ahead of all others during the first few weeks after shaking, but lost out in the race about the middle of July on account of the decreasing number of workers, in spite of the fact that one or two installments of young bees from the parent colony were added to the swarm. To remedy this, the parent colony was substituted for the brood-chamber of the swarm in several cases after the young queen then laying had been clipped and caged. In spite of the precaution of caging the young queen before this substitution, some of them were killed, thus again throwing the colony out of condition for best work in comb-honey supers. Colonies whose queens were taken away, queen-cells destroyed, then requeened ten days later with a young laying queen after again destroying all queen-cells, did excellent work, especially after the young queens began to lay, but many of these slowed down considerably in their work during the ten-day period, apparently much more than could be accounted for by the fact that much of the honey was being stored in the brood-chamber in cells vacated by emerging brood. The poorest work was done by colonies whose queens were taken away and the cells destroyed, but which refused to accept the young queens that were given at the end of ten days.

A few colonies that prepared to swarm early and were requeened with young queens after an interval of queenlessness did excellent work in the supers for four or five weeks when it became quite apparent that the ten-day interval of no egg-laying was having its effect in a shortage of workers. This, of course, would not occur during a short honey flow, but during a season like this has been in the clover region, that ten-day interval of no egg-laying early in June resulted in one or two supers of comb honey less than in colonies that had not had such a break in egg-laying.

The Editor had more difficulty than usual in introducing young queens to colonies that had been dequeened for swarm-control which resulted in poor work in comb-honey supers, until a young queen was finally successfully introduced. This suggests the desirability of shortening the period of queenlessness when this method is used. Colonies whose queens have been taken away usually can be put back into condition within two or three days by taking away all of their brood, shaking the bees into their own brood-chamber, leaving it empty except one or two empty combs or combs of unsealed honey taken from an extracting super, then leaving them to cluster in the empty brood-chamber for 24 hours after which the hive should be filled out with combs containing only sealed brood or unsealed honey and a young queen introduced. Clustering in the nearly empty brood-chamber queenless and broodless for 24 hours apparently takes the desire to swarm out of the most stubborn colonies and puts them in good condition to accept a queen. By filling the hive with combs of emerging brood that were taken from another colony ten days previously, the colony is strengthened as the remaining brood emerges.

Grading Honey as to Flavor

Natt N. Dodge

The Necessity and Practicability of Refinement in Standards for Honey from Commercial Angle

In 1927 the Washington State Beekeepers' Association brought before the state legislature a bill providing that all honey packed in Washington should bear on each label a statement regarding the geographical source of the honey contained in the package. If a honey bottler in Tacoma purchased honey from a local beekeeper, brought a carload from California, secured a shipment from the Hawaiian Islands, and picked up a ton or two in Idaho, then blended all of these in packing to supply his local trade, he would be forced, according to the bill, to declare on the label of each container that the package contained California, Idaho and Hawaiian honey. The primary purpose of this bill was to provide an appeal to the local pride of honey users, thereby inducing them to purchase only such honeys as were produced in their home state, and, by this mild form of boycott, discourage the practice of some bottlers of importing Hawaiian honey and blending it with Washington honey for the purpose of lowering costs, which enable them to undersell beekeepers and such bottlers as pack only the local honeys.

In discussing this bill, legislators brought up an important point:

"How," they asked, "can this be enforced when there is no means of determining whether the honey in this package was produced in eastern Washington or western Idaho, western Washington or western Oregon? The unscrupulous packer might declare anything he liked on the label, and the state would be powerless to prove his deceit." The defeat of the bill came as a hard blow to many Washington beekeepers who felt that, as a law, it would remedy one of the worst evils at that time casting a darkening shadow over commercial honey production in the Evergreen State.

Determining Source of Honey by Pollen Grains

According to past investigations, the floral source of honey may be satisfactorily determined through a microscopic examination of the pollen grains suspended therein, identifications of the plants producing the pollen being a key to the source of the nectar. In the April, 1929, issue of Gleanings in Bee Culture, Dr. Phillips discusses this matter very thoroughly, basing his remarks upon exhaustive experiments performed in his laboratory; and concluding with the statement that, because of the many factors entering into the pollen and nectar-gathering activities of honeybees, as well as the variation in physical structures of the blossoms of the several pollen and nectar yielding plants, pollen identification is virtually valueless in distinguishing honeys.

Unquestionably pollen found in western Oregon fireweed honey and that in the product coming from the burned-over areas of western Washington is practically identical, so that, even had the legislators been familiar with the pollen test as a means of identification, they would have had very little upon which to base hopes of enforcing such a law as the beekeepers desired.

However, the pollen produced by the various tropical plants of the Hawaiian Islands is undoubtedly of a definitely different structure than that of the flora of Washington State, hence there should be little difficulty in determining whether or not the pack of a local bottler contained any of the product of the islands. Had the beekeepers directed their attempts exclusively toward forcing bottlers to mention on their labels the presence of Hawaiian or other tropical honeys, and had they impressed the legislators with the relative simplicity of enforcing such a law through detecting the presence of such honeys by the pollen grains, there might perhaps have been another chapter in the history of honey marketing in the state of Washington.

Consideration of these facts should lead beekeepers to a fuller realization of the great value of such work as is being done by Dr. Phillips and other scientific investigators, and which is being so ably broadcasted through the columns of beekeeping publications. However, much of this effort is wasted unless it is possible for beekeepers to connect it definitely with one or more of the economic phases of the industry, and to use the information so laboriously and expertly obtained as a basis for solving their many problems.

Determining Source of Honey by Flavor

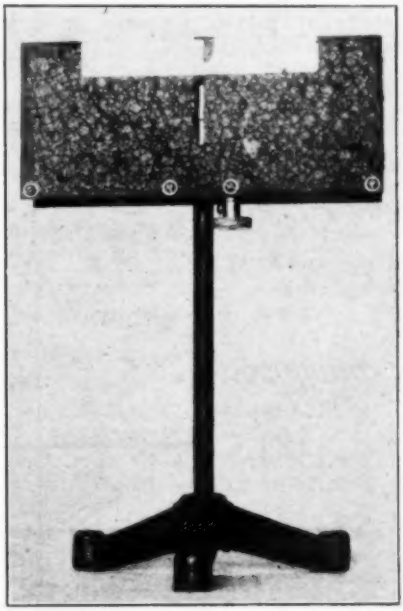
In lamenting the failure of pollen identification to furnish anything more than a clue, and that a very inaccurate one, as to the floral source of honey found on

Women's taste is often more acute than that of men. This shows Mrs. Charles Brittain of the Mountain States Honey Producers' Association testing samples for flavor.

the open market, Dr. Phillips states that there is as yet no method of determining floral source other than the trained taste of persons long familiar with the delicate though characteristic flavor of honey from specific nectar-yielding plants. Due to the varying intensities of the several flavors, it is impossible for even the most sensitive and trained taste to detect and isolate the various components in a blend of honeys, either natural or produced in the packing plant. This guide is therefore unreliable except in the case of honey coming mainly from a single flower source.

Since flavor is perhaps the major of the three characteristics (color, flavor and density or body) upon which the quality of honey is based, at least by the consumer, whose judgment is the court of final appeal in commercial and competitive honey packing, this factor is one of the utmost importance in the grading of honey. Here is the key to a situation which bears very strongly on honey marketing and perhaps has had more than anything else to do with unsatisfactory relationships which have developed between city honey packers and rural beekeepers, and between honey exporters and foreign buyers. There have never been any definite standards of flavor by which accurate information might be exchanged between buyer and seller.

Within the last few years the adoption of the Pfund Honey Grader has done much to set a color standard by which a buyer or seller might accurately convey to the other person a knowledge of the exact color of honey which he wished to buy or sell, and by this means a degree of confidence has been built up between producers, bottlers, exporters,



The Pfund honey grader is a scientific instrument of great value to the honey industry.

and foreign buyers who have access to these graders. Only through an interchange of actual samples may exact flavor knowledge be carried, and in cases where great distances intervene, this method is often too slow to be practical.

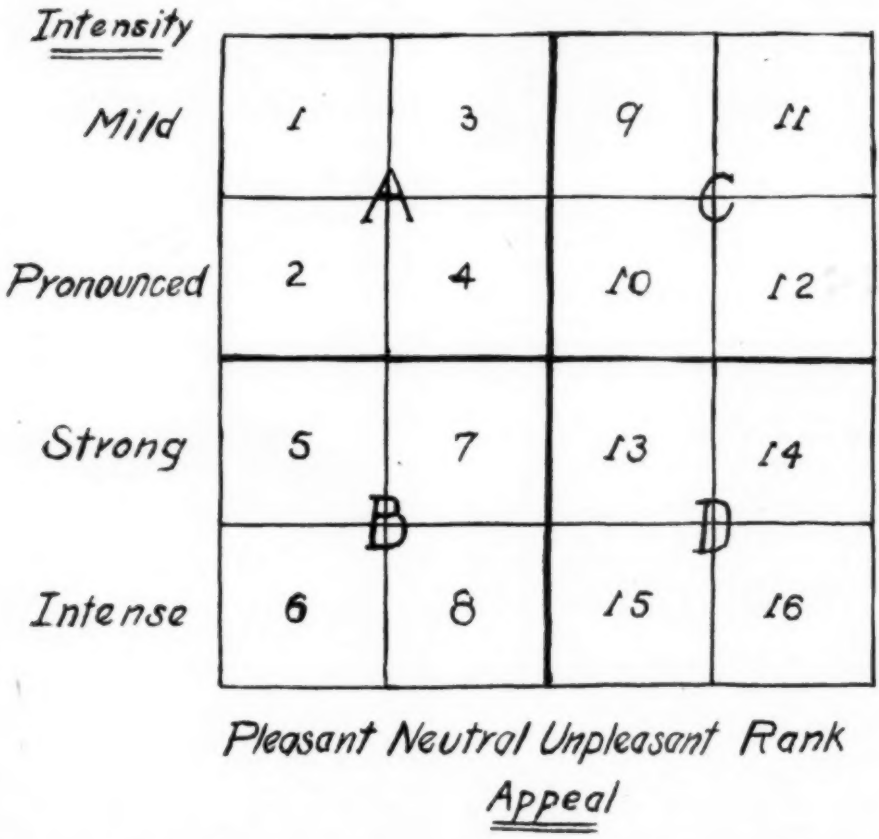
Color is very often an index to flavor intensity, but there are white honeys of a mild and pleasant flavor, and white honeys that are hardly fit for the baking trade. In the latter case, the purchaser who buys on the standards set by a hydrometer and the Pfund grader may be

gloriously stung, and have no basis for recourse because the color and density may comply exactly with those stipulated by him in placing the order.

Device for Grading Flavor

There is little doubt that a majority of persons engaged in the business of buying or selling honey or both, would welcome the development of a device for the flavor grading of honey. With color grades named and a standard for determining them provided by the Pfund grader, there yet remains a need for a flavor standard and a method of finding the position of any honey on the flavor scale. This is a problem offering seemingly impossible difficulties because of its elusive nature which defies all known methods of getting a grasp upon it. Tastes and preferences differ, and as yet there have been no chemical nor mechanical devices developed for recording flavor, so that there is nothing upon which a standard may be based. At present the somewhat crude chart method seems to offer the most promising possibilities, although it has a great weakness, the human factor involved.

The accompanying chart is suggestive of the possibilities for flavor grading and the conveying of information, regarding flavor of honey, between buyer and seller. Flavor may be said to have two characteristics: i. e., intensity and appeal. By scaling these two properties, one horizontally, the other vertically as shown on the chart, and numbering the squares thus formed, a rough graphic representation embracing the field of flavor may be obtained. Anyone familiar with tasting



To use this chart, the taster should keep in mind the commercial angle of flavor. He should also be sufficiently familiar with various honeys to make definite comparisons. With the chart before him, he tastes a sample of honey and then checks the square which seems to coincide with the appeal and intensity of the flavor. In this way the standard blends of commercial honey packers as well as honeys direct from the extractor may be "graded" for flavor.

honeys and comparing flavors might use this chart in such a manner as to designate the flavor of any specific honey, whether from a single floral source or the result of a blend.

For example, a European buyer desires a honey of strong but pleasant flavor to use in a blend with a mild honey which he has purchased. In making known his wants he might cable to his American broker asking him to purchase a stipulated number of cases Pfund 30, flavor B, or if he desired to be more specific, flavor 6. The American broker would thus have a definite idea regarding the flavor desired, and by tasting the various samples sent to him by beekeepers or commercial honey companies could pick out a flavor closely matching that desired by his client. A foreign buyer might wish to obtain a baking honey, caring little about quality as set by either color or flavor, but wishing to purchase at the lowest possible figure. By stipulating the D grade of flavor he could assure himself of getting something for which there was little demand and a consequent low price.

In selling a low grade of honey, beekeepers might readily make use of such a chart in conveying to prospective purchasers a definite idea of the flavor characteristics of their product. Augmented by the color scale of the Pfund grader, and the easily determined density as furnished by a hydrometer reading, such a chart might prove of practical utility in the buying and selling of honey until such time as scientific investigations invade the field of flavor and something with a more definite and accurate standard is developed to provide the industry with one of the instruments for which there is a great need—a device for grading the flavor of honey to assure a greater security in the commercial handling of this product.

Seattle, Wash.

The Food-Chamber

M. J. Deyell
Manager, The A. I. Root Co.'s Apiaries

How the Cost of Producing Honey Can be Greatly Reduced

There seems to be some misunderstanding regarding the food-chamber and its real mission in beekeeping.

In order to clear up this confusion, four questions must be answered: (1) What is the food-chamber as applied to beekeeping? (2) What is its purpose? (3) How is it used? (4) Is it fulfilling its purpose?

Definition of Food-chamber

A food-chamber is either a shallow or deep extracting super containing well-filled combs of capped honey, preferably early gathered honey—the cream of the crop. This definition needs no elaboration other than to emphasize the two outstanding requirements, namely, (quantity), a completely filled super of honey, and (quality) well ripened honey from the cream of the crop. The necessity of adhering strictly to these requirements will be better understood after considering the next two points.

Purpose of Food-chamber

The purpose is manifestly that of supplying food for bees. But it also supplies comb space, as we shall see later. In the final analysis the food-chamber simplifies apiary management and reduces the cost of producing honey. This two-fold purpose is certainly needed in the light of present day economic conditions as they affect labor and honey prices. Labor is the expensive item in all industries today. It must be reduced as much as possible, in order to realize a living margin of profit. As honey competes with a multitude of sweets for its rightful first place, every item of expense connected with its production must be reduced to the very minimum. This brings us to the question of how the use of the food-chamber simplifies apiary management and reduces the cost of honey production.

Method of Using Food-chamber

The plan is so simple that it needs very little explanation. In short, a food-chamber is reserved for each colony of bees going into winter quarters. This is in addition to what honey may be in the brood-chamber of each hive. In order that we may better understand its use, let us review it in outline, in apiary management throughout the beekeeping year, which logically begins about August 1.

Fall and Winter Management—The

food-chamber, during the main honey flow is usually left on top of the pile of supers. After surplus honey is removed, the food-chamber is placed directly over the brood-chamber and the colony is wintered in a two-story hive. A colony wintered in a two-story hive requires more packing than a colony wintered in a one-story hive, because there is more space in a two-story hive to keep warm. However, a colony that has occupied a two-story hive with plenty of honey during the late summer and fall is likely to be more populous in bees than a colony that has occupied a one-story hive, therefore the larger colony is better able to accommodate itself to the two-story hive.

In regions where a fall honey flow follows a summer honey flow, the food-chamber of honey should be raised up and empty supers placed under it to hold the fall crop. After the fall honey is removed, the food-chamber of well-ripened honey placed directly on the brood-chamber puts a good quality of winter stores right where the bees need it. The cluster of bees can easily move laterally between the two sets of combs.

Little if any labor is necessary during the fall, except to give colonies the necessary amount of protection against the cold winter weather. The food-chamber takes care of the food requirement.

Spring Management—With the use of the food-chamber, spring management is greatly simplified. During the spring months, prior to the major honey flow, the two major requirements are ample stores and comb space. The food-chamber supplies these requirements. When the queen has occupied practically all of the comb space in the brood-chamber proper more cells are available for the queen in the food-chamber as the honey is consumed. Thus she extends her brood-rearing into the food-chamber.

In localities where there is a heavy spring honey flow from fruit blooms and dandelions, it may be necessary to put an additional deep super of combs (preferably dark) on each colony to provide more room for brood-rearing and thus lessen overcrowding and the danger of swarming. As a rule, however, a two-story hive will hold a colony until the beginning of the major honey flow, unless the spring honey flow is unusually heavy.

Management During the Main Honey Flow—When the main honey flow begins, the queen, which up to this time has had access to the combs in the brood-chamber and food-chamber, is put down into the brood-chamber below a queen-excluder, and supers are added as needed. It seems preferable to keep the food-chamber on top to invite the bees into the fresh supers more quickly.

In the production of comb honey, the apiary management is similar, up to the beginning of the main honey flow. At that time the food-chamber is removed and stored temporarily over a weak colony. This is done at the time of giving the first comb-honey supers, or a day or so later. At the close of the main honey flow the comb-honey supers are removed and the now well-filled food-chamber is put back on the hive.

New Kink in Food-chamber Management

This has reference to rearing a young queen in the food-chamber. It can be accomplished in a locality that gives a honey flow of considerable duration. Sweet clover regions are especially well adapted to it. All the extra equipment required for each hive is a hive cover and a hive bottom.

The system is as follows: When the major honey flow starts and supers are put on, remove the food-chamber (which at this time should contain considerable honey, also some brood) to a hive-stand placed close to and facing the same direction as the parent colony. The food-chamber is immediately depleted of its old bees which return to the parent stand but the young bees remain. A ripe queen-cell should then be given to the food-chamber hive. In due time, a young queen will be mated and laying. She will not be permitted to do much laying because honey will be crowded around the brood nest. This is exactly as should be. The hive is primarily for food, not brood.

At the close of the main honey flow, when the surplus honey is removed from the parent colony, the food-chamber hive containing the young queen after having bottom-board removed, is then placed on top of the original colony. When uniting is done during October no fighting will occur. It has been demonstrated that the young queen is the one that survives in the majority of instances.

With this management the food-chamber accomplishes requeening as well as reserving ample food for the colony. But that is not all. In the production of ex-

tracted honey, this method obviates handling the food-chamber while supering during the honey flow. Then, too, when the two colonies are united in the fall, the resulting colony is very strong in bees, which is a major requirement for successful wintering.

As before stated, this new kink should not be tried except in localities where there is a long heavy honey flow. If attempted in a region giving a short honey flow, the food-chamber on a new stand during the honey flow might not be well filled.

Is the Food-chamber Fulfilling Its Purpose?

Since an ample amount of stores for wintering and spring brood-rearing is so essential for success, and since comb space for brood-rearing and the storage for incoming nectar in the spring prior to the major honey flow is also necessary for maximum results in honey production, the food-chamber certainly fulfills its purpose because it supplies these requirements at the minimum of cost and labor. Let us suppose that all of the honey above the brood-chamber should be extracted and the colony is fed sugar syrup in order to make up necessary food requirements. There would be the labor of hauling the honey to the extracting house, extracting it, mixing sugar syrup, hauling the syrup to the apiary, feeding it, and picking up the feeders after the feeding was done. While the honey taken off could be sold, the net amount secured for it would not pay the expenses of feeding sugar syrup.

That is not all. In the spring, during the fruit-bloom honey flow, it would be necessary to haul the supers back to the apiary, in order to supply more comb space for brood-rearing and incoming nectar. When food-chambers are left on the hives all of this unnecessary labor is avoided.

Best Size of Food-chamber

In regions where there is practically no fall honey flow, the full depth food-chamber is preferable. In localities where there is a dependable fall honey flow, the shallow extracting super is usually large enough. The full-depth food-chamber is, however, growing in favor for two reasons: first, because it is more likely to contain an ample amount of stores; and, second, because the frames in food-chamber are interchangeable with frames in brood-chamber.

In some regions where the fall honey flow constitutes the major honey flow, the food-chamber may not seem to be advisable. This is especially true where there is a long late honey flow, and the bees practically fill the brood-chamber with honey. It would do no harm, however, to reserve at least a shallow food-chamber of honey for each colony.

In the far north where cellar wintering is practiced and where thick sugar syrup is fed late in the fall the food-chamber would be rather cumbersome. It can, however, be reserved, to be put on after bees are put on their summer stands.

Some Further Advantages of Food-chamber

1. When the food-chamber is used, the queen is likely to use the entire area of the combs in the brood chamber because the brood combs are not clogged with honey in the upper portion. This will result in better combs because, when the queen once occupies cells of combs to the top-bars, the cells do not stretch.

2. With the proper use of the food-chamber there is no danger of any left-over dark fall honey getting mixed in with the fresh crop of white honey the following summer, provided white honey and not dark honey is reserved for food. All left-over honey is in the food-chamber and not in the brood-chamber at the beginning of the major honey flow.

3. The proper use of the food-chamber is likely to weed out undesirable weak queens. This in the end will mean a survival of the fittest, resulting in a more hardy, vigorous race of bees with superior honey-gathering qualities. Only genuinely good queens can meet requirements of food-chamber hives. No other kind of queens is worth while.

During these days of comparatively low honey prices and keen competition, beekeeping, to be made profitable, must be shorn of all non-essentials in apiary management. The use of the food-chamber is without a doubt the biggest contributing factor in accomplishing this.

Recently in one of the bee journals there appeared words to this effect: "Whenever a beekeeper decides to reserve a full-depth super completely filled with well ripened honey for each colony going into winter quarters, a new beekeeper is born." Any one who doubts the truth of this statement should give the food-chamber method of feeding a thorough trial and be convinced of its merits.

Laws of the Bees Gone Wrong

Allen Latham

Some Interesting Exceptions to the Ironclad Rules of the Hive

The habits of bees are so fixed and their reactions so constant that we think of them as ruled by laws that are never broken. Compared with ourselves bees do carry on along extremely well-defined lines, but that they will at times depart from these lines is readily seen by any beekeepeer who keeps his eyes open and can see.

I sometimes wish that I had kept preserved in alcohol all the freak bees which I have run across in my many years with the bees. I can enumerate some of them from memory. There are many hermaphroditic bees, usually a worker with some parts of a drone nature, or a would-be queen with the abdomen of a drone. There was the pin-headed drone, with a head no larger than a turnip seed because he had no compound eyes. There was the worker with only one compound eye, the top of the head being smooth and round. There was the queen only half as large as an ordinary worker, and the worker no larger than a common housefly. Then there was the queen which had the head of a drone, this queen being unable to gnaw her way out of the well-formed queen-cell.

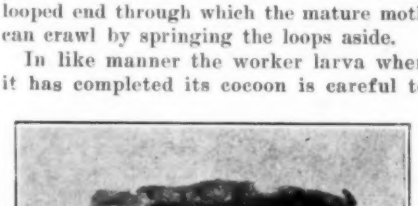
When one comes across one of these monstrosities of the beehive he can but wonder how it happened. It would seem as if the cause went at least as far back as the egg. Probably the egg was either imperfect or at best only imperfectly fertilized. Where such monstrosities occur frequently in a colony it is strong evidence that the difficulty is either in the queen herself or in the defunct drone which mated with the queen. We shall probably never find out what causes these monstrosities, but we shall never cease to be interested in them.

Instinct Rules With Great Precision in the Beehive

As a queen-breeder I have had many occasions to see the laws of the bees go wrong in respect to queens. Bees are creatures of instinct to the nth degree, and when we see one of these instincts broken we are more amazed than when we see one of our kind, creatures of reason, do a foolish act. We sort of feel that bees are above or beyond going wrong when it comes to instinct.

There is one way in which queens not infrequently go wrong in their instincts. In bee-life, as in all insect-life of kindred nature with the bees, there is the remarkable instinct which tells the little creature which way to head when it has completed its cocoon. The caterpillar of the cecropia moth, for instance, loops all the threads in one end of its cocoon without any crossing or entangling. The other end of the cocoon is a closely woven mat. When the cocoon is completed the caterpillar comes to rest with head to the looped end through which the mature moth can crawl by springing the loops aside.

In like manner the worker larva when it has completed its cocoon is careful to come to rest headed out. The instinct is so strong in the worker-larva that I have very rarely seen it broken. The queen does not carry the instinct with quite so much tenacity. I have several times found queens headed the wrong way in the cell. In pulling cells off combs in colonies which had cast swarms I have upon several occasions disclosed queen pupae with heads pointing toward the midrib of the comb. This has generally happened with colonies which had lost their clipped queens in trying to swarm and had thereafter started numerous cells over worker-larvae.

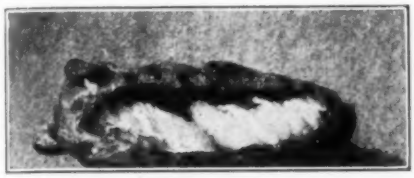


Two queens in one cell. Photo taken after pupae had dried down.

Two Queens in One Cell

In the process of grafting cups I have not infrequently placed two larvae in one cup. If this is not discovered the bees, as a rule, will develop only one of the larvae. On two occasions, however, I have had both larvae fully developed. When no queen emerged from a certain cell placed in a nucleus I opened it up. In it were two fully formed queens so entangled as to legs and bodies that they had been unable to cut their way out. They had died together in the cell.

The illustrations accompanying this article are perhaps of the most remarkable case I have ever happened upon. This



Fresh pupae were substituted, placed in exact position of original.

cell was so abnormal in one respect that I opened it to see what was the matter. Its abnormality was simple. As I remove cells to place in nuclei, I generally hold each to the light to see if there is a well-formed pupa. If there is, it will slide back and forth in the cell as the cell is inverted and again turned. I could see no motion in this cell, and felt that something was wrong. Upon opening it I found two beautifully formed pupae of full size. They were headed in either direction with their abdomens slightly overlapping.

I have heard it stated that queen-larvae eat so fast that the nurse bees find it difficult to furnish them enough food unless they get a lot stored before the larvae get much growth. One wonders, if these fears have any ground, how the bees managed to feed these two larvae in one cell. Personally I think that this abnormal cell is ample proof that we need have no fear that bees will be unable to give cells enough royal jelly, provided the nurse bees have that royal jelly to give.

This cell was found in September, 1926, just before I started to attend the Langstroth-Root Memorial at Medina. I placed the cell in a small box to carry it to this meeting for the purpose of showing it to interested beekeepers there. Unfortunately I left it at home through an oversight. On my return I found the two pupae badly shriveled and discolored. In order to get a good picture I had to get two good pupae and place them in the cell as the original ones lay. The illustration is not truthful in that it does not show the original pupae. I feel sure those who know me will be confident that I have tried to reproduce the effect faithfully. I selected pupae as nearly like the original as possible and used great care to lay them in the cell in just the positions of the originals.

Norwichtown, Conn.

A Beekeeper Told It

"Uncle John" Went Into Reverse

"Uncle John" Brumbaugh, an old-time beekeeper in Portage County, Ohio, has a good many earnest religious scruples and is overwhelmingly against tobacco in any form. He has a friend, "Joe" Zinn, a good fellow with some very exact ideas about beekeeping, who is always making calls on his beekeeping friends "just to see how things are coming along," and to offer any help or suggestion he can give.

Now, "Joe" Zinn is particular about beekeeping. He will have only rotten wood ("punk," he calls it) for use in his smoker, and he chances to be on exactly the opposite end of the tobacco question from that so religiously held by "Uncle John." When he isn't smoking he's asleep, and he claims that nothing this side of Jordan will quell cross bees so quickly as a little tobacco smoke. In fact, for years he has recommended it to "Uncle John," whose bees are hybrids, and none too gentle, although "Uncle John" has ever and steadfastly denied this aspersion against the good nature of his bee stock. One day early this summer Zinn was returning by way of "Uncle John's" place from his annual visit to the big old rotten log in a neighboring woods from which for years he has got his supply of "punk." "Uncle John" hailed him, and the old discussion about his cross bees and tobacco smoking was soon on in all its deadly earnest. "Uncle John" voluntered to show Brother Zinn how gentle his bees were, and also told him for the hundredth time that tobacco was a sin which he would never, never commit—especially against his bees. As "Uncle John," without veil or smoker, proceeded to open up one of his gentle colonies, Mr. Zinn continued smoking profusely, but stepped back. Right at once the bees began giving quite different testimony regarding their gentleness than had "Uncle John." A cloud of them stepped right to him and in a moment he was making more gyrating motions than a windmill. Then—"Zinn, let em have yer terbacker smoker, let 'em have it, all yer got."

Zinn says "Uncle John" hasn't mentioned the sin of tobacco since.

Beekeeping in North Carolina

H. H. Root

Great Variety of Conditions from the Coast on the East to the Mountains in the West

The following quotation from Extension Farm News for November, 1928, summarizes some important facts on beekeeping in this interesting state.

At present 20 of the leading beekeepers own 8822 colonies housed in modern hives, from which the owners extracted 741,048 pounds of honey this season. At 20 cents a pound this honey is worth $149,209.60. But the growth over the state has been equally as outstanding, according to Mr. Sams' records. He reports that there are 214,945 colonies of bees in North Carolina at this time. These bees produced nearly fourteen million pounds of honey this season worth over $2,500,000.

L. W. Hawks

One of the larger beekeepers of the state is L. W. Hawks of Jacksonville. Mr. Hawks was formerly a beekeeper in the western end of the state, among the mountains. He moved to the east coast in the spring of 1928 and with the change of conditions, before he realized what was going on, he had hundreds of swarms before he could get supers ready. In order to keep up with the bees he had to work outside from daylight until dark, then until eleven at night preparing supers. By three in the morning he was at it again.

Mr. Hawks has a good helper. In one day after attending to her housework and taking care of three children ranging in age from ten weeks to four years, Mrs. Hawks hived seven swarms of bees, nailed up fifty Hoffman frames and put full sheets of foundation in them. Outside of that she said she had not been very busy.

In 1926 Mr. Hawks from 108 colonies produced 15,500 pounds of honey and increased to 214 colonies. From this crop he sold 10,500 pounds of sourwood honey at 35 cents, 5000 pounds of honey at 18 cents which with $87.00 worth of wax made his total income that year from 108 colonies $6412.00.

Mr. Hawks is very much interested in seeing the box hive or plain hive gotten rid of, as they are a menace not only to his bees but to every progressive beekeeper in the vicinity. The local farm agent, N. M. Smith, is much interested in bees and is doing all he can to promote progressive beekeeping.

Chimney Rock

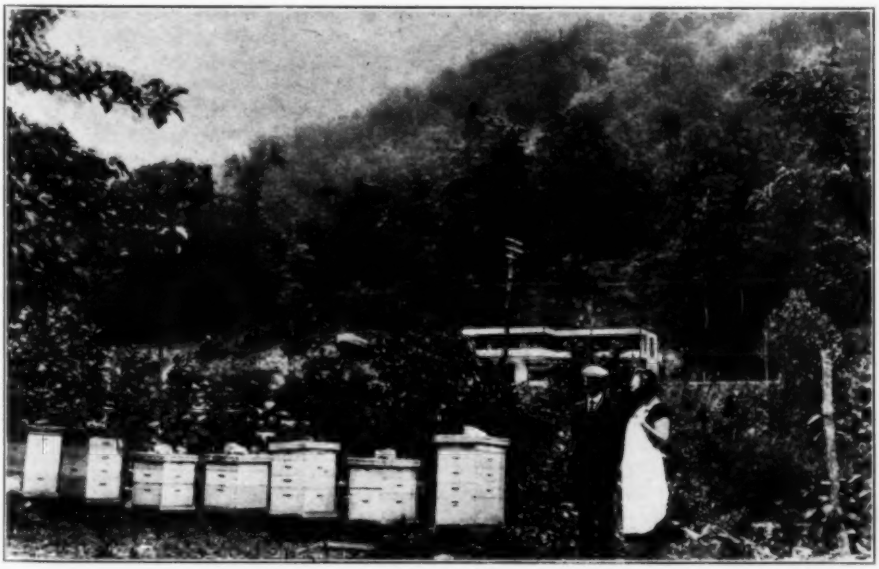
Over toward the western part of the state where the mountains begin is one of the most picturesque spots in all North Carolina. By a peculiar formation a towering rock of the mountains overhangs a beautiful valley giving the appropriate name Chimney Rock. Almost under the shadow of this rock and close by the river lives a beekeeper, J. D. Flack. A pretty row of hives face the river and the steep mountainside beyond, while back of them is the road and the majestic Chimney Rock. The scenery through this glorious gorge, with a perfect road running close to the river which tumbles and foams continuously over mighty rocks, is as picturesque as any other in the whole country. In some places the mountainsides are so steep that the sun shines on the river but a small portion of the day.

A group of beekeepers with C. L. Sams, Extension Apiarist, watching L. W. Hawks go through his bees at his home yard at Jacksonville, North Carolina.

Mr. Bart Burnett's apiary on the top of Black Mountain near Asheville, North Carolina, a healthful place for man and bees.

Mountain Beekeeping

High up on what is known as Black Mountain, not far from Asheville, is the source of the wonderful mountain water which supplies all Asheville. The custodian of this part of Asheville's water department is Mr. Bart Burnett. Mr. Burnett is an enthusiastic beekeeper. He has about 35 colonies and he produces bulk comb honey. Mr. Burnett has a beautiful home near the top of the mountain in what is probably one of the most healthful spots in the world. Here's wishing him success and long life!



J. D. Flack's apiary almost in the shadow of "Chimney" Rock. The hives face the river and the steep mountain side beyond.

The Flavors of Honey

Dr. E. F. Phillips

A Study of the Precious Substances Which Give to Honey Its Character

Every beekeeper knows the delicious flavor of different honeys, and those familiar with honeys from various flowers are able with considerable accuracy to determine their origin. It is reported of one honey taster that he was put to the test to determine the accuracy of his judgment in the sources of honeys and that he was able to distinguish and to estimate with fair accuracy the per cent of an addition of five per cent of pure sweet clover honey to a pure alfalfa honey, both of which have flavors of rare delicacy. The discrimination of honey flavors of most beekeepers is far less acute than this, yet they all recognize the flavor as one of the most important characteristics of honeys.

In spite of a general appreciation of the flavors of honeys, little is known of the nature of the materials which by their presence add to the goodness of honey. In attempting to discuss these elements in honey, it is impossible to write much that is informative and all that one may do is to attempt to show reasons for even a keener appreciation of these components of honey. To describe these flavors is as impossible as to word a proper description of an aurora borealis or of a beautiful sonata. These are things of the spirit and as such defy our vocabulary, leaving us floundering for words like a school boy on the day when recitations are given. To discuss the flavors of honey in ordinary words is almost a sacrilege, yet there are some facts regarding them which are worthy of attention and of an attempt to discuss them in prose.

The Delightful Odors of Honey

That the pleasing effect of honey is chiefly odor rather than taste is evident when one enters a bottling plant where honey is being warmed for bottling, for at such times the odor is sometimes almost overpowering. The materials, whatever they may be, are volatile and it is safe to assume that they affect the sense of smell rather than that of taste, although it is often difficult to distinguish between these two senses.

Many plants and flowers present delightful odors, sometimes at the same time offering to the bees a liberal supply of nectar but sometimes without secreting nectar. The odor of the flower or plant and the odor of nectar or honey are usually similar but, since many odoriferous flowers are nectarless and many nectar-secreting plants are virtually odorless, it must be concluded that the odor of the flower may be quite distinct from that of the nectar. Buckwheat of an afternoon fills the air with the odor of its flowers, although the nectar has ceased to fill the blossoms at noon. The strong but delightful odor of new-mown hay is well known, but hay gives no nectar.

The floral origin of honey odor is quite clear, at least to the extent of its principal amounts. Those familiar with different honeys can distinguish the delightful flavor of clover honey from the more penetrating odor of basswood. The mint-like flavor of alfalfa honey and the vanilla-like flavor of sweet clover honey are easily recognizable. It is, of course, impossible to describe these flavors in any manner other than to suggest a similarity with some other flavor, for there are no words which enable us to describe these properly. While these odors are characteristic of the floral source, yet honey which has remained with the bees for a considerable time carries a richness of flavor not to be found in freshly gathered honeys. Those who have tasted completely ripened and aged honeys, left with the bees for a long time, must realize that some odor or taste has been acquired by the honey which it did not formerly have, and which did not come wholly from the flowers.

It is well known that a minute quantity of perfume may give rise to odors which permeate a large room without appreciable loss of weight of the perfume. In ordinary chemical analyses of honey, there is left an undetermined amount consisting of a variety of things, among which are the flavoring materials. Evidently the total amount of flavoring material is small, and it is also well known that by improper handling and especially by overheating in open vessels the flavor of honey may easily be lost, leaving behind merely a sweet syrup without character. It is thus seen that the total amount of this highly essential and most impor-

tant constituent is scant in most honeys.

In all probability the flavoring material is not of the same nature in all honeys, although there are no adequate analyses which show what these materials are. Various statements, or perhaps more properly guesses, have been made of which the following are examples. In Browne's excellent bulletin on American honeys he lists among the undetermined materials without a definite decision "aromatic bodies (terpenes, etc.)." Other authors have mentioned volatile oils as present, so far as known without chemical evidence to support such a theory. Others have believed that the flavoring materials are members of the higher and more complex alcohols. Probably a highly important constituent of the flavoring substances are volatile acids and acid compounds, of which several are known to occur in honeys. These suggestions are enough to indicate that the actual nature of these important constituents is unknown. More should shortly be known about the acids of honey, when certain work now under way is brought to the point of publication, and it is to be hoped that some of the other materials which contribute to the flavors will be subjected to detailed study.

In order that any material may give rise to an odor, it must be volatile, that is, it must freely and quickly pass from a liquid or solid state to that of a gas. Heat facilitates this transformation and also the escape of the odoriferous material into the air so that it may reach our nostrils and be perceived as an odor.

Precautions to Prevent Loss of Flavor

Considerable amounts of odoriferous material are lost during the ripening process in the hive, for on still evenings the odor of honey in the apiary during a honey flow is often quite marked. This much of the loss of odor is unavoidable and perhaps often desirable, at least for certain honeys. In the process of extracting a valuable amount of odoriferous material is often lost, as must be appreciated by any person who has been in a honey-house as the honey passes through the extractor. It is well known to experienced beekeepers that comb honey has a delicacy of flavor not possessed by extracted honey, for there is an inevitable loss even with the best of mechanical operations in extracting. It is, unfortunately, one thing to appreciate this loss and quite another to point out a remedy for it. If honey could be extracted at lower temperatures, a considerable amount of this loss might be avoided, but every beekeeper knows how difficult or impossible it is to extract honey that is not warm from the hive or later warmed to about the same temperature. When honey is uncapped and put into the extractor, it passes from the combs to the outer can in fine threads, thus greatly increasing the exposure of the honey to the air and permitting the odor to escape. While still fairly warm, it passes down the can and into the settling tank. A delightful odor arises from these tanks, showing that the loss of odor still goes on. By covering the extractor, as advised in some types of machines, and especially by keeping the settling and storage tanks sealed as tightly as practicable, some of the odor may be saved, but in spite of all that one can do in all ordinary methods of handling, there is an odor in the honey-house during extracting that proves to us that the most important material in honey is to some degree escaping.

All beekeepers know from personal experience how good it is to eat cappings as they are removed by the knife, and also how good extracted honey is just as it comes from the extractor. It rarely is so good again, more is the pity. But the most severe and avoidable losses come from subsequent handling, in the various stages of preparation for bottling. To bring honey to a temperature sufficient to insure complete liquifying of all dextrose granules in a vessel or container that is not sealed tightly means a loss of flavor which can not be measured but which is high. In the final heating of honey to a temperature for bottling, in order to insure a liquid condition for a considerable time, there is still a greater danger of loss of flavor and at this point honey is often ruined. To overcome these losses as far as practicable, many bottlers keep the honey while it is being heated in closed and even in hermetically sealed containers, and this is a practice to be commended for any time or place that honey is being heated. It is one thing to point out places of danger and still another to provide remedies, but about all that one can do to add to the merit of our honeys from the standpoint of flavor is to see to it that at no time when avoidable is the honey left exposed to the air, especially when it is warm.

Not all honey flavors are pleasant. Bit-

terweed in some southern states provides a honey that is inedible, and chinquapin honey is equally undesirable. Mountain laurel honey, mentioned in a previous article as causing unpleasant physiological effects, is so bitter that one could not eat much of it, and many honeydew honeys are far from pleasing. Freshly collected goldenrod honey sometimes has a most unpleasant odor, comparable only to something decaying. Fortunately the unpleasant honeys are rare, but we also have another group of honeys that are strong yet pleasing. Of the stronger honeys that find a ready sale, buckwheat may be mentioned, and it is possible to state from a personal experience that this honey grows on one. In contrast to the stronger honeys, there are those in which the odoriferous material is so scant and the odor is so delicate that only a connoisseur can appreciate them. I have heard some eastern beekeepers refer to certain western honeys as tasteless, whereas those more familiar with these honeys recognize them as delicately and deliciously flavored.

Flavor Affected by Physical Conditions

The subject of honey flavors must not be passed over without comment on the changes in taste which occur in honeys under different physical conditions. The explanation of these changes is still a mystery to me and apparently also to others. All honeys seem to undergo a change in taste or flavor when granulated, and while all edible honeys are equally good in liquid or crystallized form, the tastes are not the same. Not only is this true, but when the so-called honey butters are made, either by causing a finer granulation or by the breaking of the normal dextrose crystals, the taste is still different from that of the usual granulated honey of the same floral source.

Warm and cold honeys do not taste alike. It is easily understood that warming might facilitate the escape of odoriferous materials and thus cause a change in the effect which a honey would have, yet somehow in some honeys there seems to be a change in quality of flavor rather than of quantity. If one may be permitted to express a personal preference, it is that a delicate honey chilled to refrigerator temperature just before serving surpasses anything in the way of honey that it is otherwise possible to find. Of course, honey should not be stored under such conditions, but it seems to bring out all the delicacy of the flavor simply to chill the honey before serving. And possibly, even probably, this is merely imagination.

Value of Pleasing Flavors in the Diet

The flavoring substances of honey are its most valued constituents. The American diet is all too often a drab thing, but we are coming more and more to appreciate the aesthetic side of our food. We properly pride ourselves that we do not live to eat but that we eat to live, but perhaps an over-emphasis of this attitude has sometimes deprived us of real and worthy pleasures. If one wished to live the life of sacrifice and to suffer in the flesh in all possible manners, presumably he might sustain life on a diet of corn syrup, tasteless and unflavored meats, spinach and other entirely wholesome but not tasty foods, but it would indeed be dreary fodder. We consider it worthy to admire excellent music or to seek joy in the beauties of nature, why not find joy in eating good things within the proper bounds of dietary propriety. Other nations give more regard to the goodness and beauty of their foods than do most Americans, eating no more and often less than do we, but receiving from the taking of food a great enjoyment. We now more and more recognize that in eating there is a psychological side to be satisfied which is perhaps largely responsible for the recent advance of home economics, which not only considers the calories of food but also its beauty. We even now spend thousands upon thousands of dollars to bring spices from the orient to make our foods taste and smell better, and this is not money wasted if we can not obtain so fine an effect otherwise.

The flavors of honey place it in the class of foods with spices and other condiments. Honey has a food value in itself and enhances our enjoyment of other foods with which it is eaten, so that it serves a dual purpose. As a source of carbohydrate food it is important, but as a source of taste and odor it far surpasses its value as a source of calories. Honey is the only available sweet except the maple products, its worthy cousins, which is tasty and good of itself. It then behooves the beekeeper and the ardent advocate of honey to emphasize the aesthetic value of honey, quite aside from its sugar content, so that they may assist their friends, neighbors and customers to receive a real and worthy satisfaction. If

one presumed to place a monetary value on the priceless flavoring materials in honey, in view of the minute amounts there found, he would perhaps place the figure at over $1,000 a pound, perhaps far more than this if only we knew how small an amount is there present. There is no substitute for this goodness and honey is its unique source. We can add nothing to the goodness of honey as it comes to us from the bees, but we can subtract from this goodness, so it should be a constant care that nothing which we do to honey shall destroy or reduce this virtue.

No person who knows the delicacy of the flavors of honeys will think this discussion adequate for this subject. It is not. An inspired poet might combine words so as to leave in the minds of his readers a vague conception of the goodness of honey, yet it is doubtful whether even such a writer would be capable of doing justice to his subject. When words fail us we are fortunate in being able to fall back on other human experiences, and fortunate indeed is he who can enjoy the wonderful flavors of honey without the necessity of trying in vain to express his sensations in mere words. Fortunate also are beekeepers, for they may share their delights in honey with their friends, not by descriptions in words but by sharing the honey crop with them. How fortunate are we that words are not the only means that we have of passing on to others these delights.

Ithaca, N. Y.

California and the Boulder Dam

E. R. Root

How the Big Dam May Affect Beekeeping. The Superlatives of the Golden State

Southern California, the land of surprises and superlatives, will take on a new boost when the Boulder Dam gets into action, as if the land of the setting sun did not have enough to boast about already. California surpasses every other state in the aggregate length of its coast and in its mountain ranges; in its climate which is milder and more uniform than that of any other state. Except possibly Texas, it has the greatest volume of natural gas and petroleum. It has the highest and lowest elevations; the biggest and oldest trees. In the production of gold it surpasses any state—1500 million dollars' worth since 1849. Single placers have yielded solid gold nuggets from $1000 to $20,000 in value. In the variety and number of its Franciscan Missions no state can equal it. You would think you were in old Spain itself during the middle ages when in one of these old missions.

California raises more fruit of all kinds,

Fig. 1.—One of the big irrigation ditches near Calexico, California, fed by the Colorado River. Notice how nearly full it is. It and the lateral ditch in Fig. 2 are liable to overflow their banks at any time and produce a deep ragged cut through the farm land as shown in Fig. 3. This always works havoc.

especially citrus fruits, than any other commonwealth. It has the largest number of orange groves and the biggest ranches.

In the aggregate number of big or professional beekeepers of 300 or more colonies, California easily outranks any other state. It has the honor of having the most extensive beekeeper in the world with over 12,000 colonies. In honey production in a good year it excels all other states. Its orange and sage honey produced by the carload is of the very best.

Can California keep on at this pace? Yes, and more. When the big Boulder Dam at the point where the three states join, Nevada, Arizona and California, begins to pour out its accumulated waters through irrigating ditches, there will be thousands of acres opened up to the citrus and alfalfa growers on lands that are now desert because at present water can not be got on to them. The big dam will not only open up this deep rich black virgin soil of seven big states, but it will supply their cities and towns with a clear potable water and with it cheap water power and electricity, the like of which will equal if not surpass the rates in the East. Why? Because the highest and longest mountain ranges of the continent will pour its melted snow into that vast artificial lake back of that big dam.

The dam when completed will be nearly 700 feet high, the highest dam in the world. The waters held by it will back up for 118 miles in the canyons and impound enough water to cover 26,000,000 acres to a depth of one foot. The total expense of the improvement will be $165,000,000.

Fig. 2.—This is the same as in Fig. 1 on a smaller scale. It is fed by one of the big ditches as shown in Fig. 1. It, in turn, feeds one of the smaller ditches as in Fig. 4.

It is, in fact, the biggest thing the agricultural southwest has ever had.

To think that this big project, the Boulder dam, like other irrigation plans, should have been held up so long in Congress is a sad reflection upon some of the men who opposed it, because forsooth the

Fig. 3 is a common case where one of the ditches, as in Figs. 1 and 2, overflowed its banks and tore through some of the finest deep rich black farm land in the Imperial Valley, making its own way to the sea. This is only a small ditch compared to one of the big ones that broke through and ruined hundreds of farms and finally emptied into a basin below the level of the sea, forming what is now known as Salton Sea. It is this kind of a catastrophe that the big Boulder Dam will avert. Had the big dam been in existence hundreds of farms and farmers would not have been ruined.

Boulder Dam would put the agricultural East in some states out of business. The regions affected by the big dam can not and never can grow the crops of the central west like wheat and corn. The southeastern states can not grow extensively long staple cotton absorbed by the automobile tire business. The dam will make possible more citrus fruit and orange blossom honey. It will likewise furnish alfalfa and alfalfa honey. It will not increase the sage crop one particle as sage does not depend on irrigation.

Not only did Congress hold up this improvement but the jealousy between the seven states as to which should get the biggest slice in the big pie delayed the project. Arizona to its own hurt is still standing out.

Fig. 4 shows how the small ditches fed by the Colorado River thick with silt are filling up. In order to keep the water running, it is necessary at enormous expense to shovel the mud out of the bottom of the ditches and deposit it upon their banks as here shown. Most of the ditches and laterals in the Imperial Valley have the banks piled high above the level of the land by this constant accumulation of mud. The Boulder Dam, because of the enormous artificial lake back of it, will avoid all this. The silt from the Colorado River will settle in the lake and only clear water will flow into the ditches. The banks of the ditch are ten feet above the general level.

How the Boulder Dam Will Pay for Itself

A great hew and cry was raised in Congress that the Boulder Dam was going to cost so much. The same noise was made about holding the Mississippi in its banks. The facts are, both projects will pay for themselves in a short time. In the case of the Boulder Dam the earnings from the water rights and power purposes will retire the bonds in short order and from that time it will be a money-maker and a blessing to thousands of our population who can not live in our colder climates. The East is already congested. The big dam will open up vast areas that are now shut out to our population.

As the Mississippi project will save millions of property and hundreds of lives, the Boulder Dam will prevent the wiping out of a whole county in southern California. Much of the Imperial Valley is below the level of the sea now, and one bad break of the Colorado River with its banks of loose soil, will flood the whole valley now below the level of the sea and make a vast inland sea of what is now some of the most prosperous farming and bee country in the world. Some years ago the old Colorado did break loose. It wiped out hundreds of farms, made their owners, where they were not drowned, bankrupt, and then tore a new river bed and laterals through some of the finest farming land in the world. The old river tore on until it filled up a great basin making what is known as the Salton Sea, the bottom of which was nearly 300 feet below the level of the sea. It was by almost superhuman effort that the mad rush of the river was finally stopped.

When I was in the Imperial Valley of southern California and in old Mexico last spring the river was full and ready to break through its banks at any moment. The irrigation ditches, Figs. 1 and 2, which are here shown, were clear full. Some of these ditches did break, tearing

great cuts in the easily eroded black deep rich land. See Fig. 3.

A large part of Imperial Valley running into old Mexico is every spring in constant danger of being flooded, the whole farm land washed out and in its place a great sea such as the Salton Sea as now shown on the maps but which did not exist a few years ago.

How the Big Dam Will Stop Floods

Now, then, the big Boulder Dam will stop all this. It will impound the surplus water from melting snow and hold it in a big lake behind the dam. Nature has afforded a wonderful place for the dam in one of the numerous canyons of the mountains and a place for a great deep lake that can give out its waters as it is needed and no faster for the entire year. The silt that is so troublesome now will settle, allowing only clear water in place of the muddy water that fills up the ditches with silt or what is unadulterated mud. This makes constant expense to keep the ditches clear.

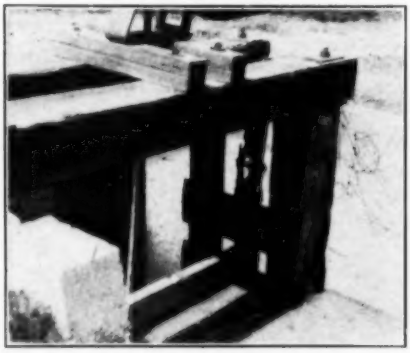


Fig. 5 shows a gate or valve that regulates the supply of irrigating water to each individual farm or ranch. The same thing on a larger scale is used to cut off or feed some of the ditches which in turn have smaller gates.

Where the Irrigating Water Comes From

The mountain states depend mainly upon irrigation from the melting snow of the mountain ranges that catch the moisture or rain which in turn freezes and falls as snow. Were it not for these high ranges much of the great West would be hopeless desert; but the mountains besides being reservoirs of stored-up water in the form of snow to be given out as needed through the season are also the sources of our minerals. Where irrigating ditches are properly put in, the crops are more sure year in and year out. This is the reason why the beekeeper in the Rocky Mountain states is, as a rule, more sure of a crop than the beekeeper in the East who depends on rainfall that is scant some seasons at a time when most needed. According to this token California ought to be just as sure of a crop of honey as Colorado, Idaho, Montana or Wyoming. Unfortunately this is not true, because the state is relatively warmer and there is less snow accumulated, and because the ranges as a whole are not as high. It is right here that the Boulder Dam will, for Imperial Valley, Los Angeles and San Bernardino counties, help make up the deficiency that has so long existed and at the same time put water on desert land that will yield crops as well as other erstwhile desert lands are now yielding. California, when the new irrigation gets under way, it is hoped, will be more of a superlative state for honey than it is now. It will produce much more orange than now, and there will never be too much of it.

Fig. 6 shows how the gate regulates the quantity of water going through one of the smaller ditches. It also backs up the water above so that it can flow onto the farm land.

Caution

Now, from all I have said, the beekeeper of the East may jump to the conclusion that California is surely all gold and the land of promise. It may become such, but this cold fact should be remembered, that with all that can be said of this state in a superlative way it is not as reliable for honey every year as the Rocky Mountain states nor yet as the states back in the rain belt in the East. What the Boulder Dam is going to do for the three states adjoining is yet to be demonstrated.

From the Field of Experience

NECTAR THAT IS WASTED

A Vision of Systematic Location of Apiaries to Gather All Nectar

Gather up the fragments that remain, that nothing be lost.—John 6:12.

Economic facts of life despise unoccupied possibilities as certainly as nature abhors a vacuum. It grieves me to see neglected and wasted possibilities.

I love the fields of clover and the blooms that spread their beauty wide across the landscape like rugs of cream and crimson as though the fairies had there planned a great festivity.

But scarce do I behold such beauty or inhale its magic breath but a sense of deep regret comes stealing over me as I seem conscious of a wasted possibility because there are not bees enough to gather all the crystal drops of nectar that must now decay and return unused to the source from whence they came.

And then beside the road (often in the very fields where honey flows unused) there is an unoccupied dwelling or deserted school house or other building that would make just such a workshop and storage plant as any beekeeper might desire.

These deserted and decaying sites can frequently be rented at a cost so nominal as to make it seem to be a gift, and in many cases they are purchasable at a figure so very low as to seem to ridicule the present high prices of building material and labor.

I have often wondered why some aggressive genius did not attempt to organize the better honey-producing portions of the country into a systematic arrangement of out-apiaries whereby regular visits to these apiaries could be made, and bees enough supplied to properly populate every clover field with these busy workers.

Some of the necessary help might be obtained by using college students during their vacation periods, and thus furnish pleasant outdoor employment of a camping nature to aspiring youths who incline to such activities, and thus another unoccupied possibility be turned to good advantage by giving remunerative employment at a time when work for such students is often hard to obtain, and at the same time give the students just the kind of outdoor exercise that they need to put them into the best of spirits for their indoor work of the following winter.

On last Memorial day I walked down the well-shaded streets of a beautiful little city of 3000 population. It was characterized by paved streets, well-kept lawns, thoroughly standardized public schools, a well-equipped public library with good building, good banking facilities and business houses of such proportions as to command respect.

Only one shadow hung over the town. It has been more prosperous. In other days it had enjoyed a boom. The boom had died out and surplus houses stood empty and neglected. Those who had built them had rushed on to other temporary booming centers or had suffered financial losses and with no prospects of again living in them, and with no market for them, they were in some cases being disposed of for delinquent taxes.

Such property is sometimes located in good clover territory with wonderful honey possibilities, and the bees will never know that the town is dead if they are kept well queened and otherwise properly managed. Why not look for a dead town where property is cheap in which to start long-distance beekeeping? The presence of good neighbors in such a town might help to prevent disturbance by marauders. Often there are good cities within a reasonable distance where a good market could be obtained for the honey. —Rev. J. R. Stelle, Butler, Ind.

CARE OF BEES AFTER HARVEST

An Extremely Important Period in the Life of the Colonies

One is inclined to be a little careless after the honey flow is over and follow the let-alone principle, but this is just the time that we should check up on our bees. Just how will they be prepared for winter and how will they give an account of themselves during the spring honey flow? Well, that depends very much upon their condition during August and September, and, in the far South, even in October.

I have requeened successfully in Octo-

ber, though I would much rather do this in August or earlier. If our colonies have a young queen and a super of honey in late summer we will not meet the fate of the careless beekeeper who robs too closely and then neglects his bees.

It has been said that the queen is the soul of the colony. I used to think this phrase was coined by queen-breeders to further their own interests, but we can no more expect a honey crop from colonies with old and failing queens than we can expect eggs from old, scrubby and failing hens—and just how long would we last in the poultry business that way?

Here in this part of Georgia I find that a fall honey flow is very uncertain and during the changing days of spring one must have strong colonies to gather the nectar, consequently we must depend a great deal upon summer and fall preparation.

I know a man who has kept bees in movable-frame hives for forty years, yet he never saw a queen inside a hive nor ever handled frames. Years ago, as a beginner with lots of confidence, I ordered queens before I knew what they looked like. Failing to find queens, I divided hives and attempted to tell by the behavior of the bees which were queen-right. Well, I did in all but one. Needless to say I lost a queen. For our colonies' sake let us look carefully to our bees during late summer and fall.—Chas. H. Huey, Decatur, Ga.

SOURCE OF HONEY DIASTASE

Great Variation in Diastase Content in Samples from Different Sources

Further investigations confirm earlier observation that natural comb honeys vary sharply in their content of diastase. Following the method outlined in the American Bee Journal for June, 1929, a series of honeys have been compared. Some honeys are extremely low in diastase, while others carry a large amount of this starch splitting enzyme. Comparable figures obtained from certain honeys appear below.

Kind of honey.	Time to digest starch
Black locust mixture, comb	6
Star thistle mixture, comb	12
Sage *(salvia)*, comb	24
Sweet clover-alfalfa, comb	32
Belvedere Island, comb	68
Orange, comb	over 1320

The question as to the source of diastase in honey naturally arises as well as to the useful purpose of its presence there. No satisfactory answer yet suggests itself for the latter. There is little, if any, starch found in honey. The value of honey diastase in the human diet is obscure since two small drops of saliva carry much more of it than a whole gram of the most potent honey yet examined here. Preliminary investigations have failed to locate diastase in the various glands, muscles, stings, digestive organs, etc., of the bee (Vansell & Freeborn, Jr. Ec. Ent.) when the contents of the intestinal tract are excluded. The number of pollen grains in the honey sample is roughly in correlation with the diastatic potency. Compare the following pollen counts with the diastase figures above:

Kind of honey.	Pollen grains.
Black locust mixture, comb	599,000
Star thistle mixture, comb	30,000
Sage *(salvia)*, comb	10,300
Sweet clover-alfalfa, comb	5,500
Belvedere Island, comb	3,000
Orange, comb	3,000

The experimental evidence to date, June, 1929, points strongly to pollen being the possible source. Some corroborative field observations are also available in the cases of alfalfa and orange. The pollen of alfalfa is tightly enclosed in a receptacle which resists opening through the activity of the honeybee in nectar collection, while the navel orange has practically no pollen.

It may be that the diastase content of honey is a sort of contamination depending upon the amount of pollen dropped into the honey during its preparation from nectar. In any case the writers would be pleased to have others over the country check up on these observations with local honeys.

Three series of honeys have been subjected to oven temperatures from 70° to 212° F. for 24 hours. The diastase activity was not lowered seriously until about 120 was reached. Above 140 the diastase was rapidly inactivated. None of the three tested honeys showed any diastase activity after exposure to 170°, and but very little at any exposure over 160° F.—Geo. H. Vansell and Stanley B. Freeborn, Davis, Calif.

[Evidently the method used in Germany of testing the purity of honey by its diastase content is not dependable.—Editor.]

Siftings

J. E. Crane

It is poor policy to use many superlatives in writing or talking. Many persons in speaking of something of little importance use the strongest words they can command, and when they try to tell of something really great they have only the words used for small matters, but really that is certainly a very excellent article by H. H. Root beginning on page 428, telling us of his visit to and conversation with W. K. Kellogg.

I am sorry to say that I had thought of Mr. Kellogg as a keen business man who had accumulated a large amount of wealth, but now I have seen him and heard him talk and feel that he is one with us, and that he has given to the world as much as he has received, and doubtless very much more. I am sure all the beekeepers of this country who read Gleanings in Bee Culture will be grateful for the picture of this man who is doing so much to bring honey to the attention of—well, say, the whole world.

We are thankful, too, for the pictures of Mr. Freeman and Mr. Mahan on page 429—and there is Miss Mary I. Barber. She looks pretty small beside those men but when nature has something choice to offer she often does it up in small packages, as Delaware grapes or sickle pears. If any one doesn't believe Miss Barber is nice just get her to speak at your beekeeper's convention.

That is a valuable article on page 434 on the fermentation of honey. Dr. Phillips told us some time ago how well-ripened honey after granulation would ferment. In this article we are told how those curious little specks, too small to be seen by the unaided eye, may live for years and then make us trouble. We are told also how to keep them from doing us harm.

What can be more enjoyable these warm summer days than to lie in a hammock or sit in an easy chair and read of a "Trip Through the Tropics," by E. R. Root. I thoroughly enjoyed it. Perhaps the more so for having taken a similar trip over fifty years ago, only I started from San Francisco. Los Angeles was then a little town of a few thousand and the Panama Canal was a short neglected ditch. Sea sickness—yes, I had a plenty of it on the Atlantic for it was March, but my friend who was with me said he was never seasick. No, never, had traveled on the Great Lakes in fearful storms, but never gave way to such effeminate weakness. But I noticed one day he had a severe turn of what he called a sick headache, and the fishes got his dinner.

On pages 445 and 446 Rev. J. R. Stelle gives us a nice little sermon. I, too, would write a little sermon. My text is Ps. 27, 4: "One thing have I desired of the Lord, that will I seek after; that I may dwell in the house of the Lord all the days of my life to behold the beauty of the Lord and to inquire in his temple." We may well believe the house to which the Psalmist referred was the great out-of-doors world as high as the heavens above and as broad as the universe and that all nature reflects the beauty of the Lord. Little wonder that he desired to live in such a house and make inquiries. How rich have been the answers to inquiries these later years. Franklin asking the nature of lightning, the Wright brothers asking the secret of flight of birds, or Huber or Langstroth asking the nature of bees. What a pleasure to ask questions and get answers to them. Beekeepers may well rejoice that they can live in such a house and behold beauty on every hand and inquire about the mysteries with which they are surrounded.

"Requeening without Dequeening," an editorial on page 426, also a short article by Lloyd S. Paynter would seem to indicate that we are in a fair way to introduce a young queen safely into a hive with an old queen without the trouble of looking up the old queen or without any loss of brood-rearing. I hope the subject may be carefully studied by many beekeepers this season and tested as well. If it proves as successful with others as with these careful beekeepers, it will prove a great advance.

I must not close these brief paragraphs without expressing my appreciation of Mrs. S. W. Palmers' efforts to spread the "Gospel of Honey," page 444. If all who have the time were as zealous, the demand for honey would increase by leaps and bounds.

From North, East, West and South

Southern California

June has come and gone and the honey crop has been very disappointing to most beekeepers of southern California south of Los Angeles County.

Bees on our ranges have made almost no surplus but seem in a fair way to get winter stores. Buckwheat has bloomed well but furnished little nectar. A scarcity of moisture is the only reason we can give for this condition. Bees in most apiaries are free from disease and beekeepers are taking care of it wherever found so it does not get the chance to spread that it did in years gone by.

All bees intended for shipment to the northern states have gone forth as the new law in Utah went into effect July 1, after which date no bees are to be shipped in in hives. Several beekeepers have seriously considered getting locations and keeping their bees up there permanently, replacing the winter losses by shipping packages up there in the spring. The great objection offered by many beekeepers to leaving their bees there throughout the year is that there is practically no spring bloom for the bees to build up on until the alfalfa begins to blossom in the summer. Even with shipping the latter part of June as now practiced, it is often necessary to feed for some time until the alfalfa begins to yield nectar so the bees can get a living.

As it is here in southern California, many beekeepers have looked the country over to find a possible location where the bees could have a chance to get a fill-up or possibly a little more. Places where alfalfa is allowed to bloom or the great lima bean fields of Orange, Los Angeles, Ventura, and Santa Barbara counties are about the only hope left for most of us this year. But the good years will come again and we will soon forget these poor seasons.

Buyers are searching the country for what little honey there is at figures ranging from around 8½ cents for buckwheat to around 11 cents for white orange. Beeswax is not so much in demand but sells around 30 cents quite readily.—L. L. Andrews, Corona, Calif.

Northern California

June rains off the coast, followed by warm summer days, revived hope for the star thistle crop; but the size of the crop is still problematical, and will likely be short, as conditions are very spotted. The dry and backward spring retarded wild growth and even in some of the most favorable spots feeding has been necessary. Feeding has been resorted to, even during the past month. Lippia and summer wild flora revived by the rains will assist in building up for the thistle flow, but at best many bees will not be in shape, and due to the general dryness the thistle flow is expected to be short lived.

Governor Young signed an amendment to the Apiary Inspection Act of 1927. The amendment defines bees as including all immature forms of honeybees and drawn comb. This strengthens the law, since a written permit is now required for removing any part of a diseased colony. Queen and package bee candy must contain no honey and all certificates issued on clean bees must be based upon actual inspection and the freedom of the apiary from disease in accordance with this new amendment.

Over-heated honey has received much attention at all beekeepers' meetings. California beekeepers are eager to co-operate to eliminate any cause for this complaint. Reports indicate that star thistle honey has not been complained against in the foreign market. The University of California studies have shown this honey to be high in diastase content. German buyers have at times expressed a preference for honey from this source and beekeepers desire to maintain its good reputation.

Great interest has been displayed in the prospects for the establishment of a U. S. Apicultural Field Station on the Pacific Coast. Reports received indicate that this item in the budget of the Secretary of Agriculture will receive attention at the next congress. Pacific coast beekeepers have long awaited some attention from the government to their unique problems. The beekeepers' associations are awake to the fact that research and progress go hand in hand.

Special effort and excellent co-operation

in the disease clean-up of the package-bee sections have been in progress this year. This has been a very trying and busy season for package-bee producers. The backward spring interfered with the building up of colonies; however, indications are that California will ship around 70 tons of package bees this year. The bulk of these shipments come from northern California, which is especially favored for the early package-bee business.—Frank E. Todd, Sacramento, Calif.

Arizona Weather conditions were not favorable through May and June for a good honey crop here in Arizona. It has been entirely too windy and dry for the honey plants to do well. Especially does this apply to the mesquite and catsclaw areas. In some locations they were a complete failure and in other locations a few cases were received. The mesquite and catsclaw did not produce one-third the amount they did last year.

The year 1929 will long be remembered by the writer for not a single pound of honey was secured from around 850 colonies. Over 2000 colonies did not produce a pound of surplus honey this year. These bees were operated by my brothers and myself. I have reports from other producers who say the same thing.

I have just returned from a short trip through the farming area. Alfalfa was in good bloom. Cotton just beginning to bloom and will continue to bloom until late fall. Some producers say that cotton is not a very dependable honey plant. They also state that the long staple produces more than the short staple does. There is a greater area in cotton than in alfalfa. Most alfalfa is cut for hay and therefore is allowed to bloom but very little.

I do not know of any producers with any quantity of honey on hand. If there is any surplus produced in Arizona it is up to the farming area to do so. A great per cent of the honey this year will be dark. I do not know a single producer with enough honey to make a carload shipment. I believe the honey produced here this year will be consumed locally and very little if any to ship out. I do not know just what producers are asking for what little honey they have here this year.—Leslie Wedgworth, Oracle, Ariz.

Utah After a late cool spring, which made it almost impossible to get bees up to normal strength, nature has finally commenced to pay her debts under the law of compensation. Two weeks ago we had a much-needed rain. Since that time the alfalfa has nearly all been cut before there was much bloom, but the honey is now coming. Yesterday the colony on the scales indicated a gain of ten and one-half pounds, which again proves that the atmospheric conditions are of much more importance than the amount of bloom.

Package bees that were secured by May 1, while not so strong as the best wintered-over colonies, are much more even in strength and are doing well.

But a small per cent of colonies were strong enough to swarm when the heavy honey flow started. That condition, together with the lateness of the season, has prevented excessive swarming.

After such discouraging spring conditions it appears now that we may secure a fair crop as our best honey flow usually comes after July 15. If the season is to close with an average temperature, we may look for quite hot weather for the next two months, which is favorable to the secretion of nectar.

While the markets are quite bare of honey, there seems to be not much call for it, but prices should stiffen a little over those of the past year.—M. A. Gill, Hyrum, Utah.

Texas May gave us thirteen inches of rainfall which is a record for this state. Immediately following this period of wet rainy weather came twenty-eight days without a sign of rain, and then within one hour a rainfall of over two inches accompanied by a sixty-mile wind. This twenty-eight days of dry weather brought mesquite into bloom, and in spite of the tropical storm on the 28th of the month, the bees are still gathering honey from the mesquite. It is not hard to imagine that it was just such a season as this that Swartz saw the mesquite in bloom, and gave it the name of juliflora, the July bloomer. It would be rather hard to imagine better weather for a continued honey flow than the first three weeks of June, warm partly cloudy days and cool nights. The bees took advantage of this period and showed their endurance by putting up from four to ten

pounds per day. This is an example of one of the honey flows which occurs without knowledge of the majority of beekeepers. The mesquite was not conspicuous but very wide-spread and the bees worked it from daylight until dark.

The majority of the honey crop in the southern half of the state has been gathered, and judging from reports it is normal or better. There are already a number of buyers in the field. The price offered is not high. The producers are holding off, hoping for a better figure. The report from the cotton section indicates a normal crop. Cotton is normal in every respect, and a normal yield can be looked for. No reports of loss from poison have been reported. East Texas has not reported on the honey crop, as the vines and hard wood trees from which a majority of their honey comes, have not as yet completed blooming.

There is a very decided move on foot for the organization of a marketing association. Mr. H. E. Coffey, as spokesman for a number of commercial producers, has called a preliminary meeting for effecting such an organization the day following the beekeepers' meeting at the Short Course at College Station. If this meeting meets with success a permanent organization will occur at a meeting in San Antonio some time in September. This movement is backed by the Extension Division of A. and M. College through F. W. Mally, county agent of Bexar County. —H. B. Parks, San Antonio, Texas.

Kansas After a heavy winter loss by many beekeepers there has been still more losses in June and July. Many colonies during May and June were at the stage of starvation. Honey flows were supposed to be in progress but inclement weather interfered with the activities of the bees. Beekeepers who were in touch with the situation in the colonies prevented this adverse condition by providing feed. At the present time many beekeepers are wondering why the colonies are not storing a surplus of honey. The condition present is one where the colonies are now building up to gathering strength on the honey flow, because of neglect of a month or two ago. Prospects are good for the more careful beekeeper if the weather is satisfactory; but poor for the neglectful one who has already lost heavily and has not taken care of his bees.

Reports of honey-flow conditions are rather spotted. In northern Kansas there is a good flow from white sweet clover. Northeastern Kansas has a flow from white clover, white sweet clover and basswood, the basswood being along the rivers and creeks. The rainy cool weather has prolonged the blooming of white clover and it may continue for another two weeks if showers come at intervals. The Kansas Valley and central Kansas have areas of good honey flow conditions. A ten-pound gain for a scale colony was recorded for July 7, at the K. S. A. C. apiary. This was following a shower of the day before. South central Kansas sweet clover and alfalfa are producing nectar. The southeastern part of the state has a sweet clover flow. The white clover flow finished last month.

Indications are that the price of honey this year is to be better than the past two years. Practically no honey of last year is in the hands of the producers. This will be a fine help to the crop which shortly will come on the market.—R. L. Parker, Manhattan, Kansas.

Western New York The Western New York bee picnic will be held at S. L. Littlefield's apiary, Gasport, N. Y., on July 27. The annual summer picnic of the New York State Association of Beekeepers' Societies will be held at Adams & Myers' Lake, Ransomville, August 2. At these meetings the idea of organizing a statewide association of commercial beekeepers will be discussed and probably committees will be appointed to foster such an organization.

There have been some 30 bee inspectors working in New York this season with several counties under so-called clean-up areas. Our own county of Niagara has been in this clean-up and the work has been very satisfactory and thorough, and our chief inspector, Mr. A. C. Gould, is deserving of great credit for the way he is handling the situation throughout the state.

Spray poisoning has been rather serious again this year. Personally we had 200 colonies ruined.

The honey flow has been very good in these parts, beginning about the middle of June. Swarming has been hard to con-

trol (in fact, we haven't) on account of many rainy days and erratic nectar secretion. Some days our scale hive gains several pounds and some days it loses weight on account of evaporation. Most of the good colonies, however, have secured from 80 to 100 pounds of some of the finest clover honey we ever produced and if weather conditions prove favorable the flow will continue for several days still.—H. M. Myers, Ransomville, N. Y.

Minnesota A number of summer meetings have already been scheduled for Minnesota beekeepers and still others are being scheduled in different parts of the state.

On August 14, 15 and 16 the Minnesota State Beekeepers' Association is joining the Wisconsin State Association in a beekeepers' chautauqua at LaCrosse, Wisconsin. The location is easily accessible for beekeepers in both states and a large crowd is expected.

Beekeepers of northern Minnesota and of North Dakota are planning an exchange of visits on July 24 and 25. The North Dakota meeting will be at Hillsboro, on July 24, at the home of Charles Hausman, president of the North Dakota Association. The following day it is planned that the entire group will drive from there to Crookston, Minn., where a meeting will be held at the Northwest School of Agriculture.

On July 31 the beekeepers of Hennepin County will meet at Robbinsdale, near Minneapolis, at the home of F. W. Ray, president of the Minnesota State Beekeepers' Association.

Mr. and Mrs. George H. Rea and Mr. and Mrs. W. B. Long of Reynoldsville, Pa., will attend all the above meetings. Mr. L. T. Floyd, Provincial Apiarist, from Winnipeg, Manitoba, will attend the Hillsboro and Crookston meetings.

Considerable interest is being developed in beekeeping in northern and northeastern Minnesota because of the increased acreage of alsike clover being grown for seed production. That region of the state seems to be particularly adapted to the production of fine quality alsike seed. The clover-seed midge has given some trouble in places, but experimental work has shown that this pest may be controlled by clipping at the proper time. Fireweed is an additional important source of nectar in many parts of this region.

The northern part of Minnesota has experienced the worst drought in many years. This is causing the clovers to blossom and form seed earlier than usual. The southern part of the state has received a number of very beneficial rains during the first part of July.—M. C. Tanquary, St. Paul, Minn.

Manitoba At this date, July 6, honey is coming in fast from white dutch clover and yellow sweet clover. White sweet clover is showing the first set of blooms.

The spring has been cool and very dry. Grain crops have suffered much and are sure to be a short crop. Sweet clover looks well and will make better hay than in a wet season and as we have had some rain during the past week, and it is raining today, we may get an average crop of honey as this comes principally from the second crop of sweet clover.

Buyers are very active and are placing contracts for the new crop. Marketing conditions are different from anything for the past few years. Honey produced in this province last year has been sold for the past three months. Quite a lot of low-grade honey from outside the province is in the stores but it is not selling as this market will not buy dark honey except in the foreign districts where there is a small demand for buckwheat honey.

With a larger appropriation for disease work, the force of inspectors was increased this year to five and about half the province has been well inspected this year. This is our second year of clean-up and except in one district the inspectors are pretty well pleased after checking over last year's work. We have had no big fires like last year but where large apiaries had a small percentage of infection the inspectors found it pretty hard work finding those few cells.

We have had no court cases and few arguments and feel that we are pretty well settled down to the system recommended by our Ontario friends. I might add, however, that our principal difficulties come through the medium of disinfectants for brood combs which in every case has proven expensive and ineffective. One of our best beekeepers claims to have spent $400 disinfecting combs and had

twelve colonies burned by the inspector out of fifty-five. Our department recognizes no method of disinfecting brood combs.—L. T. Floyd, Winnipeg, Manitoba, Canada.

Arkansas The year started off very promising for beekeeping in Arizona. The bees that were in the hands of good beekeepers were in good condition. They had plenty of stores and the bees began to rear brood on schedule time and everything looked rosy and prosperous, but in due time it began to rain and turned cold, and this kind of weather continued up into June. Our beekeepers in Arkansas have had a battle to control swarming and to keep their bees from starving. I have yet to find in the state a super of honey. I have found but a few cases where the bees have entered the super, but I am happy to say that flora now blooming is secreting abundantly and we hope for a late surplus. We lost the white clover nectar as well as other early blooms which produce our best quality honey, but we yet have a bloom to come that produces excellent honey of good body, flavor and color, and that is the Spanish needle.

We have at this time the greatest number of beekeepers in the Arkansas Beekeepers' Association that we have ever had. I believe that we have more interest over the state in beekeeping than we have ever had before. More people able to buy equipment are entering the business, not merely for pleasure but for profit.

Recently I was invited to address the Arkansas Horticultural Society at Lincoln, Arkansas, on June 27, and the fruit-growers asked me many questions regarding apiculture. The subject of my address was, "The Importance of the Honeybee as a Pollenization Agent for Apples." Many of these fruit-growers are entering the bee business purely with the view of pollenizing their apple blossoms, and much work has been done by demonstrations in Washington and Benton counties.

Sweet clover is now being talked by county agents, district agents of the agricultural extension service and agricultural men of railroads to furnish legume for dairying, humus and nitrogen for soil. So, taking it all in all, apiculture in Arkansas looks very promising indeed.—J. V. Ormond, Little Rock, Ark.

Iowa The season of 1929 will long be remembered as one of unique development. The winter loss in Iowa was large and it was spread all over the entire state. In addition to this the spring was exceptionally late, therefore, beekeepers immediately began to take inventory as to how to make up the winter loss. Some beekeepers ordered package bees and installed them on the comb from the dead colonies. Others made increase out of their yard. It is difficult to say which procedure will obtain the best results this year.

The honey flow conditions have been very interesting. The dandelion and fruit bloom were delayed but the summer honey plants have come on in almost the normal period. An outstanding feature of the honey-plant situation this year is the abundance of white clover. This is general over the state and beekeepers are remarking that this has been the most white clover in 10 or 12 years. Bees are not working heavily but sufficiently to make material increase in the yield per colony. There is a tremendous increase in the acreage of yellow sweet clover, especially in the western part of the state. In other sections of the state yellow sweet clover is spreading rapidly as a weed along roadsides and railroad right-of-ways. The white sweet clover continues to increase in importance as a honey plant in this state. It is being grown as a part of the soil-improvement program of the farmers in general. The basswood yield was not large this year, although the bees had excellent weather to gather during the period of bloom. A relatively small number of trees bloomed this year.

Special effort is being made by the Agricultural Extension Service to get beekeepers interested in better marketing conditions for honey. A special project has been put on and it is hoped that it will be received by beekeepers in many counties. In conjunction with this project the extension service has purchased one of the offcial honey graders and it is possible now for beekeepers to send in a sample and receive an official grade. It is to be hoped that many producers will avail themselves of this service which is rendered free.

Many people are becoming interested in the prices and there is a strong tendency to stabilize.—F. B. Paddock, Ames, Iowa.

Southern Indiana

It has always been a hobby of mine to study bee nature. I have often said that a bee will behave just the same in one locality as in another provided the conditions are the same. I have heard how the bees swarm in certain localities, especially in the North. This is not a bad locality for swarming, as a rule, some seasons almost no swarming taking place. But this season was an exception and the conditions were just right for swarming. I did not know there were so many bees in the world, for every one, it seems, had swarms. One lady called me to get a swarm out of her chimney, another had bees in the siding of her house, another had them in a porch pillar. Bees went into trees in the city. Even the judge had a swarm take possession of a hollow tree in his yard, paying no attention to his injunction which forbade them loitering there and heeding not his mandate commanding them to vacate. In a nearby town the bees took possession of the First Methodist church and they said it caused a falling-off in church attendance. As they were going to have a funeral they asked me to get the bees out.

In studying the conditions under which bees are commonly kept by the back-lotter and farmer-beekeeper, the wonder is not that they swarm but rather it is a wonder if any should fail to swarm. The bees are commonly kept in a single-story eight or ten frame hive and after the honey flow is well on a super of sections with starters is set on. Any colony that did not swarm under such management should be brimstoned. Many colonies swarmed several weeks before the honey flow began. Those who gave two or three brood-chambers had little swarming, although some swarmed with empty combs all around the cluster. I found one very curious condition where three colonies had swarmed and clustered together. They told me I could have them if I came after them. The swarm weighed ten pounds. In looking into the hives, one was found to have queen-cells with eggs in them, while the other two had no cells at all. Otherwise the colonies seemed normal with plenty of brood in all stages. The hives were close together and the bees in clustering out mingled with each other and the swarming fever was passed along so that the two colonies went with the one that had built cells.—Jay Smith, Vincenes, Ind.

Michigan

A big crop of fine quality honey is in sight. Already many colonies have stored more than last season's total crop, and there is a good chance for as much more from sweet clover and second growth alsike and white clovers.

Such a honey flow is a fine reward for the careful beekeeper. The spring period was a heart-breaker and a bank-breaker, too, because all colonies had to be fed in many apiaries. One beekeeper reported feeding 10,000 pounds of sugar, another, 9,000 pounds, to keep bees brooding. The week before the honey flow started many colonies had less brood than a month previously. But when the scale hive started gaining the "store food" was soon paid for, with attractive interest besides.

Just now interest centers on the Michigan-Ohio super auto tour which starts at Adrian, Mich., courthouse, 9 a. m., Aug. 5, stops for lunch at the home of Geo. Mapus, Clyde, Ohio, at noon, continuing to Medina that afternoon. Prof. W. E. Dunham is arranging for a social gathering at The A. I. Root Company's plant for that evening and the next day. Aug. 6 will be given over to a meeting of Ohio and Michigan beekeepers, including a trip through the factories. The tour home on Aug. 7 will be routed to visit prominent beekeepers, including the Delphos Tri-county group.

The legislature provided the funds for continuing apiary inspection on practically the same scale as for the past two years. A "joker" bill was tied on to the $25,000 special appropriation for apiary inspection in the last rush of the closing of the session, giving $4000 for cherry tree inspection, but aside from that the work proceeds as usual. Chief Apiary Inspector Krebs has a picked crew of experienced inspectors in the field and reports several counties completed already.

Arrangements have been completed for Mrs. Day, of the Home Economics Department, W. K. Kellogg Company, Battle Creek, to give daily demonstrations of uses for honey as a special feature of the honey exhibits at Michigan State Fair, Sept. 1 to 7.

More requests for assistance are coming from the fruit belt than ever before. Extension Specialist J. C. Kremer has large groups at his demonstrations. Some fruit-growers have co-operatively engaged beekeepers to operate their colonies.—R. H. Kelty, East Lansing, Mich.

Ontario Since writing notes for last issue of Gleanings, weather conditions have been so variable that it would be quite in order to use that old-time expression, "this is a peculiar season." I remember that I stated that clover was extremely late, and, to our surprise, very hot weather brought the alsike on so rapidly that the honey flow actually started ten days earlier than a year ago. After a long siege of near starvation at many apiaries, needless to say, the majority of colonies were not ready for the flow, particularly in locations where spring feed is very scarce. But strong colonies stored heavily during the first ten days of the flow and then all at once the weather turned cool and very wet. For the past two weeks bees have done little in our section and clover is quite well advanced. Prediction at this writing is that we will have a medium crop of very fine quality in this locality, much depending upon whether we get fine warm weather for the next ten days. I understand that in the southwestern counties of Ontario the crop will be good in general, and above the average in some places. Very little sweet clover this year in our section, but where there is an acreage amounting to anything of this plant, conditions at present are ideal for a crop from that source as sweet clover delights in lots of moisture and not too hot weather. Very little has been done yet in the way of sales for this year's crop, although I have heard of some business having been transacted at around last year's prices. Quality appears to be above the average in every place I have heard from, and that is one factor that is pleasing when it comes to selling the crop.

For the first time in quite a few years we are losing out by having our bees mainly situated on the lighter land where sweet clover has been grown instead of here nearer home where alsike is a staple crop on our heavier soils. However, we have had only two years in the past ten in which alsike has yielded well (this is one of them) and in the meantime we have had some bumper crops from the lighter soil where the sweet clover acreage was located. So, averaging the years up, we feel that we are away ahead in the game by moving as we did, so we shall have no regrets over this year's experience, and, after all, the limited acreage of sweet clover may yet surprise us. It is just starting to bloom so we can anticipate even if we do not realize—and without the joys of anticipation this surely would be a dull old world.

In the last issue of Gleanings I also stated that buckwheat would be blooming along with clover as the latter appeared to be so late. Wrong again in this case as the very dry weather kept back buckwheat seeding and there are very few fields of early buckwheat in the country, while last year at this date buckwheat was blooming in some places. So it looks as though we will have little trouble in keeping clover honey pure from buckwheat this year, aside from what may bother us in the sweet clover sections.

Last Sunday (July 7) the nerviest man in Ontario visited one of our apiaries about nine miles from our home. On Monday I went to this apiary which is in plain view of a main highway, and as soon as I got to the gate that leads into the yard, I saw that thieves had been there. Investigation showed that three hives had been molested. The first two had little honey in the supers and combs had been taken out and thrown to one side of the hive. The third hive had been given a second super on the previous Saturday, and from this super six Jumbo combs had been taken. They were nearly full of honey, but it was not yet sealed. I know this by the condition of the three combs left in the super. All three hives had been left uncovered.

A neighbor lives about half a mile away and their house is in plain view of the apiary, so I called and asked if they had noticed anything around the yard since my visit two days before on Saturday. They had not noticed anyone, but a lady from Toronto, who is boarding there, overheard us speaking and she told us that she and her son went for a walk down past the yard on Sunday and that she remarked to her son, "There is the man who owns the bees working with them." From what I could learn from the lady, the fellow drove his car right into the yard off the highway where hundreds of cars were passing by, and he was there for at least half an hour. She told me that he had "something over his face," and that he was going all around the apiary lifting off covers and looking in, etc. Not suspecting anything she did not even take the number of the car so, of course, we have not as yet any clue as to the identity of the marauder.—J. L. Byer, Markham, Ontario.

Heads of Grain from Different Fields

Queens Injured by Caging In reference to bees superceding queens that are sent by mail or with package bees, I have noticed that a large per cent of queens do not do as well after a colony has been shaken on foundation for American foul brood as they did before. Also when a queen-breeder keeps queens on hand so he can send them by return mail there is a high rate of supercedure and those that are not superceded are not heavy layers as a rule. Is it possible when a queen has been laying quite a while or is laying heavily, that stopping her laying injures her, and that only those queens just starting to lay are fit to mail? You might suggest this to the government investigators.—C. E. Andrews, Fallon, Nevada.

Queen Above in Uniting Colonies The observation of Wm. H. Baker of Davis, California, that in uniting colonies the queenless one should be on the bottom, checks with Mr. M. J. Deyell's statement that in uniting two queen-right colonies it is the queen in the upper story that survives. Requeening is very difficult during the long dearth in the Sacramento Valley. It is no longer attempted but uniting is practiced. When the queenright colony is placed *over* the queenless one everything goes fine. In the reverse case the queen below is killed by the bees coming down from above. As reported in Gleanings (October, 1926, page 668), Mr. Baker unites most successfully with a moving screen or by wetting down with sugar syrup.—Geo. H. Vansell, Davis, Calif.

Plate Glass Hive for Honey Exhibit For an exhibit to be a success it is usually essential to have some special central attraction. To accomplish this at the Department of Agriculture honey exhibit at the Canadian National Exhibition, a large plate glass hive and bottom-board were specially made. The combs were suspended on two nickel rod ladders at each end of the hive. Ventilation was allowed at the top, in front and in the bottom-board. Copper fly screen was used to cover all the openings for ventilation. A portion of the hive-stand was removed on each side permitting abundance of ventilation to pass freely from the bottom-board out through the hole in

Honey exhibit by the Ontario Agricultural College. The tall hive in the foreground is made of plate glass, thus permitting visitors to see a full colony of bees within the hive.

the glass cover. By taking the above precautions we found it was not essential to change the bees throughout the two weeks of the exhibition. The glass was not spotted and was almost as clean as when the bees were placed in the hive. This cleanliness was not expected as I made preparations for several changes of bees. To see such an enormous quantity of bees was certainly a striking attraction. Huge crowds were nearly always in front of the exhibit. Small observation hives were used in the past, but the large hive proved to be a much greater agent of attraction. —E. J. Dyce, Guelph, Ont., Can.

Painting Inside of Hives from Diseased Colonies The method of disinfecting hives that I like best is to scrape off all wax and use a paint made of five pounds of yellow ochre to one gallon of linseed oil and use gasoline as a thinner. I mix the oil and ochre rather thick, then thin with gasoline until quite thin and paint the inside of the hive-bodies. This may sound like a big job but this paint goes on easily and covers well. The work can be done faster than with a blow torch. Then, too, the hive-body is much better than before. There is no danger to the bees as this paint has no poisonous substance in it. This is also a cheap method as the amount of paint given above covers about 100 eight-frame hive-bodies. This paint makes a fair prime coat for the outside also, but the gasoline should not be added, as it tends to make paint brittle when used for outside work.—R. W. Barnes, Morrill, Neb.

Cool Hive by Evaporation Whenever the atmosphere is dry the bees will bring in water and store it in the burr-combs between the top-bars or in the little depressions in cappings over the capped brood. In fact, in the middle of the afternoon on a very dry day we find water stored in almost every conceivable part of the hive. During dry periods when there is no nectar coming into the hive the scale colonies will show an increase of from one-half pound to a pound and a half, due to the storage of water.—H. B. Parks, San Antonio, Texas.

Area Clean-up in Michigan Mr. H. M. Krebs, director of apiary inspection, reports a very satisfactory decline in foul brood found in counties inspected thoroughly for the second time. Complete records will be compiled shortly, and should prove interesting reading to those states which are making little effort to systematically purge themselves of foul brood. We in Michigan, with but 115 of the 1268 townships of the state remaining to be covered, can begin to see the light of day. And it might be mentioned that it was the Michigan Beekeepers' Association which obtained the assistance of the administration for this work.—R. H. Kelty, East Lansing, Mich.

Mr. A. Van der Spiegel, Bergen, Netherlands, still keeps a few of his colonies in straw skeps.

Just News

Editors

"Beekeeping in Indiana" is the title of a new bulletin by Prof. W. A. Price, Purdue University, Lafayette, Indiana.

A reduction in freight rates on honey, carload lots, has been announced for Southern Territory and we understand that a similar reduction will soon be announced for Northern and Western Territories.

On August 5, 6 and 7 the Ohio State Beekeepers' Association and the beekeepers from Michigan who take in the Michigan-Ohio Tour will hold a joint meeting at the plant of The A. I. Root Company. The first meeting will be an informal get-together on the evening of August 5, at which time E. R. Root will speak on his recent trip to California. On the morning of August 6 the beekeepers will visit the factory of The A. I. Root Co,, and also the Basswood Queen-rearing Yard. The remainder of the forenoon will be devoted to the business meeting of the association. Many well known men have been secured to take part in the program of the 6th. Out-of-state speakers are: a representative from the Bee Culture Laboratory, Washington, D. C.; Dr. Barnard, president of the American Honey Institute, and Prof. Kelty, from the Michigan Agricultural College. Other speakers are H. H. Root, Fred Muth and Geo. S. Demuth. A banquet has been arranged for the evening of the 6th. Camping facilities have been arranged on ground adjoining the office of The A. I. Root Co. On the morning of August 7 the Michigan beekeepers and as many Ohio beekeepers as care to will tour out of Ohio visiting prominent apiaries on their way.

A report of the experimental work with the Watson method of artificially inseminating queen bees, by W. J. Nolan, was published in the June, 1929, issue of the Journal of Economic Entomology under the title, "Success in the Artificial Insemination of Queen Bees at Bee Culture Laboratory." Records of the successful insemination of a number of queens by workers in the Bureau of Entomology are given in this article which confirm the results obtained by Dr. Watson.

Two interesting papers by D. M. T. Morland, M. A., director of the Bee Research Institute, Rothamsted Experimental Station, England, are just received. One of these, a reprint from the Annals of Applied Biology, May, 1929, entitled, "A Record Scale for Bee Hives," gives details of construction of comparatively simple scales that record the changes in the weight of a hive of bees. The other is a reprint from the Journal of the Ministry of Agriculture, January, 1929, entitled "The Feeding of Bees," in which the result of some carefully conducted experiments in feeding are recorded. An interesting and somewhat surprising result of these experiments is that sugar syrup boiled with a small amount of acid as usually recommended for making winter feed, showed less inversion when tested with the polarimeter after having been fed to the bees and sealed in the combs than sugar syrup not so treated.

Captain James Morgan, secretary of the Apis Club and editor of the Bee World, died suddenly of pleurisy on June 30. Captain Morgan was a veteran of the World War and had special training in beekeeping in the West of Scotland College of Agriculture.

The new bee law in California, which requires that colonies of bees be registered, has already brought forth interesting data as to the number of colonies in that great beekeeping state. The total number of colonies thus far registered is 337,370. These are in the hands of 10,486 beekeepers. It is predicted that the 400,000 colony mark will be reached before all the bees are registered.

Among the meetings scheduled for August are the following: Texas Association of Queen Breeders at College Station, Texas, on August 1; New York State Beekeepers' Association picnic at the home of Adams & Myers, Ransomville, New York, Aug. 2; Central New York Beekeepers' Association at the apiary of Mrs. Mable Parker near Syracuse, Aug. 3; Michigan-Ohio Beekeepers' Association joint meeting, Medina, Ohio, Aug. 5, 6 and 7; Finger Lakes Beekeepers' Association at Romulus, N. Y., Aug. 9; Louisiana Beekeepers' Association, Baton Rouge, Aug. 7 and 8; Wisconsin Beekeepers' Associtaion, LaCrosse, Aug. 14 to 16; New Hampshire Beekeepers' Association, Durham, Aug. 15; Pennsylvania Beekeepers' Association, Rockton, Aug. 16; Maryland Beekeepers' Association, College Park, Aug. 31.

Food Department

Malitta D. Fischer

Honey and Fruit

One of my readers in the West has requested a review of honey and fruit combinations and I am glad to add a few new honey-fruit dishes to the list.

Not so many years ago fresh fruits were a luxury. Oranges, apples and bananas in the Christmas stocking were a treat. Then it was found that fruits could be grown successfully in this country and a great industry has rapidly developed. Oranges, grapefruit and bananas are now plentiful the year around. So is honey!

Right now we have a great variety of fresh fruits—strawberries, raspberries, blackberries, gooseberries, peaches, apricots, pineapples, plums, pears, currants, apples, cantaloupes, cherries. Right now we have fresh honey, too. And what a combination—fresh fruits and honey!

Honey fresh-fruit combinations, whether in the form of breakfast sauces or toast, luncheon salads or beverages, tea desserts, dinner cocktails or evening sundaes are quite refreshing during these hot, wilting days, both from the standpoint of flavor and nutrition.

Isn't it fortunate, too, that both fruits and honey are so good for us. They are both delicious and useful. It is difficult to get along without the two together. Honey and fruit can be served in hundreds of attractive ways in your menus. In addition, they can be eaten between meals and at bed-time.

Here's a few of the old and new honey fruit combinations.

BREAKFAST

Fresh Peaches and Honey — Oatmeal Gems
Coffee or Milk
Honey Green Apple Sauce — Walnut Toast
Rice Krispies — Coffee — Tea
Strawberries and Honey — Omelet
Hot Muffins — Milk

LUNCHEON

Fresh Pineapple with Honey
Tomato, Lettuce, Cream Cheese Sandwiches
New Lima Beans
Honey Fruit Lemonade
Cantaloupe Honey Sundae
Deviled Egg Sandwiches
Cucumber, Celery, Radish Salad
New Corn on Cob
Honey Peach Shortcake
Iced Tea

DINNER

Honey Fruit Cocktail
Lamb Chops — New Potatoes with Parsley Sauce
New Peas and Carrots
Honey Blueberry Muffins — New Comb Honey
Royal Salad
Honey Parfait
Tea, Iced or Hot

VEGETARIAN DINNER

New Corn on Cob
Young Beets — Mashed Turnips
Deviled Egg and Celery Salad
Hot Graham Gems
Comb Honey
Blackberry Roly Poly
Honey Orangeade

RECIPES

Fresh Peaches and Honey—Slice fresh peeled peaches and drizzle slightly warmed honey about the slices. From 1 to 2 tablespoons mild warm honey drizzled over one to two fresh peaches after sliced will not make the resulting dish sweet but just accentuate the peachy taste. Add cream or milk as desired.

Honey Green Apple Sauce—Wash green cooking apples, quarter and core. Cook with skins on in just enough water to keep from burning. When soft, mash with potato masher and run through strainer. Sauce should be thick, like puree. Thin down with slightly warmed mild honey until sweet enough to satisfy your taste. Personally, I use two to three tablespoonfuls of warm honey to each cup of apple puree. Never peel apples before cooking because much of the flavor and valuable mineral content is lost in so doing.

Strawberries, Raspberries, Fresh Cherries or Blackberries—Carefully wash berries—in case of cherries halve them. Fill sauce dishes and drizzle warm honey about, using a great deal less for strawberries, raspberries and blackberries than the cherries. In case of the cherries it is well to let them stand after drizzling honey about for at least 20 minutes before serving.

Honey's Standby—Grapefruit and honey. I. Cut chilled grapefruit into halves, place halves in cereal bowl; pour over each half 2 or 3 tablespoons mild honey. Let stand over night or even a half hour before serving in the morning. II. Peel the grapefruit, divide sections and for each grapefruit of sections or slices, allow 3 to 4 tablespoons slightly warmed honey; let stand 15 to 30 minutes before serving.

Honey intensifies fruit flavors—all fruits to which sweetening is added for serving are delightful when honey-drizzled. Citrus fruits have a new tang and refreshing flavor when sweetened with honey. Start the day right by having honey-drizzled fruits for breakfast.

Fresh Pineapple—Peel pineapple as usual and dice as for sauce. For each cupful of pineapple dices allow 2 tablespoons slightly warmed mild honey. Let pineapple dices after honey drizzled stand in refrigerator about half hour before serving. A good appetizer for a hot day luncheon.

Honey Fruit Cocktail—Take small dices or cubes of fresh fruit—white grapes, pear, orange, pineapple, grapefruit, strawberries or whatever you have—arrange in cocktail glasses. Mix 2 tablespoons warm mild honey with 1 tablespoon of lemon juice and pour this over each serving (allowing ¾ of measuring cup full of fruit dices for a serving.) Chill at least 30 minutes before serving.

Vitality Cocktail—Juice of 2 oranges, yolk of 1 egg, juice of half a lemon, tablespoonful of honey. Beat these ingredients together and drink every morning.

Honey Peach Shortcake—Shortcake recipe, 6 to 8 shortcakes: 1 cup flour, ¼ teaspoon salt, 1 teaspoon baking powder, 1 egg beaten light, 1 tablespoon shortening, ⅓ cup of milk, 1 ta-

blespoon honey. Cut shortening into sifted dry ingredients until thoroughly blended. Add to this mixture milk which has been thoroughly mixed with beaten egg and honey. Roll to about ½ inch thick, cut in rounds 2 inches in diameter. Bake in moderate oven (375° F.). Peaches for shortcake: Peel peaches, slice and arrange slices generously in center of shortcake, drizzle 1 tablespoon warm honey, cover with shortcake top, arrange peach slices on top and about sides, drizzle 2 tablespoons warm honey over top and sides, top with honeyed cream. To make honeyed cream, add 1 teaspoon warm honey to each ½ cup of whipped cream.

Blackberry Roly Poly—1 cup flour, ¼ teaspoon salt, 2 tablespoons honey, 2 teaspoons baking powder, 2 tablespoons shortening, ¼ cup milk, 1 egg beaten. Blend milk, have it warm with honey, add beaten egg. Sift dry ingredients, cut in shortening. Add egg milk and honey mixture. Roll about ¼" thick on floured board, brush with melted butter. 2 cups blackberries, pinch of salt, ½ cup honey, 1 teaspoon cornstarch. Mix salt and cornstarch, add to honey and pour over berries. Spread dough with this mixture. Dot with butter, roll up as for jelly roll. Place in greased pan and bake in moderate oven (375° F.) for 25 minutes.

Cantaloupe Honey Sundae—Halve good ripe cantaloupe. Drop scoop of ice cream in center cavity of chilled cantaloupe. Drizzle 1 to 2 tablespoons honey over ice cream depending on size of round of ice cream.

Honey Parfait—In the bottom of a parfait glass put a teaspoon of crushed fresh raspberries; cover with a teaspoon of warm honey; add a portion of vanilla ice cream, cover with fresh sliced peaches, drizzle a bit of honey over these, fill glass with whipped cream and sprinkle with fine grated nut meats.

Honey Fruit Lemonade—For each serving allow 2 tablespoons lemon juice, 2 tablespoons honey, 6 tablespoons orange juice, 1 tablespoon pineapple juice and 1 tablespoon fresh crushed strawberries. Blend honey with lemon juice, add other fruit juices, pour in tall iced tea glass filled with cracked ice.

How These Fruits Will Taste Next Winter in Homemade Honey Preserves and Relishes

Cherry Jelly—Crush cherries and cook slowly, without water, until tender; then strain through flannel bag or two folds of cheesecloth. The fruits should not be pressed if a clear jelly is desired. To two quarts of strained juice allow one quart of honey. Let boil until it double drops from the spoon. Strain and pour into sterilized jars. Seal with hot paraffin.

Currant Jelly—4 cups currant juice, 3 cups honey. Boil rapidly to the jelly test, pour into sterilized glasses and cool. Seal with hot paraffin as regularly done.

Peach Jam—3 pounds peaches, 2 cups honey, 1½ teaspoon whole cloves, 3 tablespoons lemon juice. ¾ cup peach juice, ¾ teaspoon allspice, 3 teaspoon broken stick cinnamon. Put spices in a cheesecloth; cook slowly all materials until of desired consistency. Remove bag of spices. Place while hot in sterilized jars and seal.

Fruit Sauces—Prepare the fruit, pack raw in jars, cover with honey syrup and process in a water-bath or steamer the required length of time. For strawberries, cherries and pineapple make syrup of 2 parts by weight of honey to 3 parts of fruit juice or water. For plums and peaches make syrup of 1 part by measure of honey to 2 parts of water.

Cauliflower Pickles—Remove all outside leaves and stalks, then wash cauliflower thoroughly. Break into small flowerets. Cook in boiling salted water for 12 minutes. Rinse in cold water; then pack the pieces in hot sterilized jars. Fill the jars with honey spiced vinegar prepared as follows: 1 quart vinegar, ½ cup honey, 1 teaspoon whole cloves, 1 teaspoon mustard seed, 1 teaspoon whole allspice, 1 teaspoon broken stick cinnamon, 1 teaspoon celery seed, 2 small onions sliced. Boil 15 to 20 minutes, strain and pour over sterilized jars filled with cauliflower. Seal while hot.

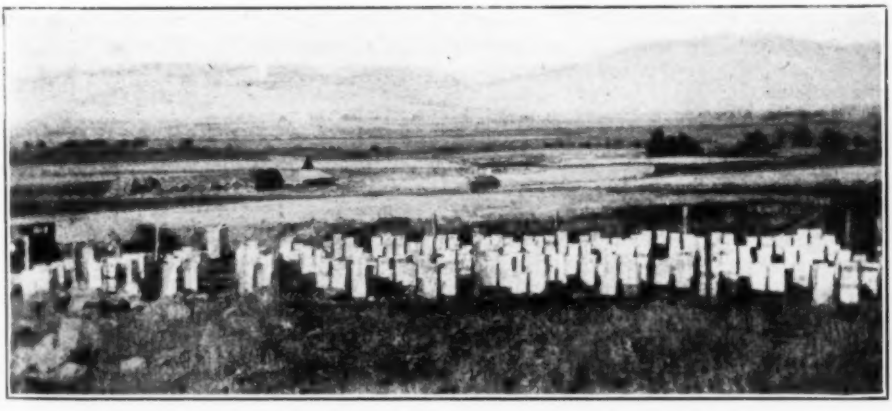
Drizzling Honey

In many of these recipes you have noticed —drizzle honey and slightly warmed honey. Honey drizzled is better than honey poured for a little gives just the sweetness desired and intensifies natural flavors. A lot of thick honey poured on makes any dish too sweet. Place the honey jar in warm—not hot—water for about 15 minutes before using. When you're ready to add to food, it is just the right consistency to drizzle tiny threads instead of pouring a heavy stream.

Mildly flavored honey is best with fresh fruits and for canning.

An Unusual Toast Service

1 teaspoon cornstarch, 1 tablespoon cold water, juice of 1 orange, ¼ cup orange pulp, pinch of salt, honey. Mix cornstarch and cold water; add orange juice, and boil, stirring constantly for five minutes. Add orange pulp and salt. Pour over buttered honeyed toast. To make honeyed toast drizzle two tablespoons warm honey over each slice of toast immediately after it has been taken from toaster and buttered. Allow honey to soak into bread before pouring over the sauce.



Typical western apiary among alfalfa and sweet clover fields under irrigation.

Talks to Beginners

Geo. S. Demuth

Late July or early August usually brings the close of the main honey flow in the clover region of the northeastern portion of the United States and eastern Canada, but where sweet clover is abundant, the bees may continue storing this month. In the sweet clover and alfalfa region of the northwestern portion of the United States and western Canada the honey flow usually continues well into August and in some cases throughout the month. In the buckwheat region the honey flow from buckwheat should begin this month, and in the regions having an abundance of fall nectar-bearing plants, such as goldenrod, swamp Spanish needle and other fall flowers, the fall honey flow usually begins sometime during the month. In many localities, however, there is a dearth of nectar in August which makes it necessary to handle the bees carefully, if at all, and increases the problems of the beginner in finishing the early honey crop and in getting ready for a possible fall honey flow.

Inducing Bees to Finish Comb Honey

In many parts of the clover region, white clover is still in bloom and may still yield considerable nectar. In the northern part of the clover belt it may be possible by careful management to have unfinished sections of comb honey completed from this late clover bloom. To accomplish this, the comb-honey supers should be taken off and all finished sections sorted out. The unfinished sections should then be assembled in the supers with those nearest completed in the middle of the super in order to induce the bees to finish them more readily. If any contain only foundation they should be placed in the outside rows. In this way the number of supers can usually be reduced to one for each colony. If the honey flow stops entirely, all comb-honey supers should be removed immediately before the bees stain the white cappings of the sections with a varnish of propolis and soil the wood by deposits of this sticky substance.

The honey in some of the sections may not be completely sealed, but these unfinished sections can usually be sold in the neighborhood at a reduced price. Those in which but little work has been done can be saved to put back on the hives if there is a fall honey flow, or until they are needed next summer. The honey can be extracted from these unfinished sections, or fed back to the bees by placing a super containing them on the hive when there is a dearth of nectar. If the bees do not remove the honey readily it can be saved until spring, then given to the bees when they need food for spring brood-rearing.

Harvesting Extracted Honey

During the warm days of August is a good time to extract honey, since it comes out of the combs more readily when the weather is warm. Honey that was stored in extracting combs several weeks ago and left on the hives during hot dry weather should be well ripened and ready to extract, even though the combs are not completely sealed. If there are only a few supers of honey to extract, it is a good plan to set up the extractor ready to run before any honey is taken off, then extract it as it is taken from the hives while it is still warm.

It is not necessary to have an elaborate outfit for extracting small amounts of honey. A box with a screen nailed on in place of the bottom can be used to catch the cappings as they are sliced off the combs. This uncapping-box can be set over a tub to catch the drip. The honey can be strained by running it through a piece of cheese-cloth tied over the top of a large can or jar. If no such vessel is at hand, the honey can be run out into buckets, then, after the extracting is done, the extractor itself can be used for a tank into which the honey can be strained through a piece of cheese-cloth tied over the top. In this case the reel should be taken out of the extractor and the can should be thoroughly cleaned so that there will be no particles of wax in the honey after it has been strained. The honey can then be run into pails or jars through the honey-gate at the bottom. If there is a considerable quantity of honey and it is to be stored, the ordinary 60-pound square honey cans are excellent for this purpose since they can be sealed with the screw-cap to prevent the absorption of moisture.

Storing and Marketing Honey

Comb honey should be stored in a warm, dry place since it will absorb moisture if stored in a damp atmosphere. Apparently the wax cappings are sufficiently porous

to permit moisture to pass through. If it absorbs moisture from the air, it may sour and burst through the cappings, thus giving it a bad appearance. If the honey is well-ripened and the room in which it is stored is dry, the supers can be piled in a tight pile as they are brought in, then the honey can be taken out and prepared for market as needed.

Sometimes the larvae of the wax moth get into comb honey and spoil its appearance by tunneling through the cappings. To prevent this, it is well to leave the honey in the supers, as described above, for about two weeks, then fumigate it to destroy the larvae of the wax moth. A convenient way to do this is to place a shallow pan on the top of the upper super in the pile, place an empty super over it, then pour one ounce of carbon bisulphide into the pan if there are six supers in the pile. If there are three supers, one-half ounce should be used and the same proportion for any number of supers. A few hours later the supers can be repiled in order to permit the fumes of the carbon bisulphide to escape. The honey is then ready to prepare for market.

In preparing the honey for market, the propolis (bee glue) should be scraped from the edges of the sections, then placed in shipping cases, which should be kept closed to exclude insects.

Extracted honey is sold in various sized packages all the way from small jars holding a few ounces up to barrels, but for selling small amounts to one's neighbors, the ordinary 5-pound friction-top pail makes an excellent package. Ordinary fruit jars are sometimes used for this purpose. The white glass is much better for this purpose than the ordinary green glass since it shows the honey to better advantage. When extracted honey is sold direct to consumers who will use it up before cold weather, it is not necessary to heat it when it is put into the pails or jars.

Care of Extracting Combs

The safest way, especially for the beginner, to store extracting combs after the honey has been extracted from them, is to put them back on the hives so that the bees can take care of them. The bees will clean them up and prevent their being damaged by the wax moth until the arrival of cooler weather when they can be taken off and stored for winter. When finally stored for winter, the supers of combs should be piled in tight piles and well covered so that mice can not get into them.

Preparation for a Dearth of Nectar

In some localities there is a dearth of nectar during August so it is well for beginners to have their colonies prepared for such an emergency. Sometimes the honey flow closes so abruptly that the bees do not store much honey in the brood-chambers at the close of the honey flow. Therefore, when the supers are taken off but little honey may be left in the brood-chambers. When comb honey is being produced there is considerably more honey in the brood-chambers at the close of the season than when extracted honey is produced. When supers are taken off, the brood-chamber should be examined to see if there is sufficient honey for the needs of the colony.

When it is remembered that the bees that form the winter cluster must be reared in August and September in the North, and in September and October in the South, the importance of leaving sufficient stores for a possible dearth of nectar during this period can readily be understood. Colonies that approach the verge of starvation during this important brood-rearing period, or that have poor queens, or that are queenless, can not possibly be in good condition for winter. It is, therefore, important to see that every colony has sufficient food, a good queen and room enough in the brood-chamber for several combs of brood during the remainder of the summer and early fall.

Preparations for a Fall Honey Flow

Honey gathered from fall flowers is usually much darker in color and stronger in flavor than that gathered earlier. It is, therefore, not as suitable for comb honey as the lighter colored milder-flavored early honey, and unless there is a local market for such comb honey it is best not to try to produce it in that form. It will be well to watch the work of the colonies for indications of a fall honey flow, since in many localities it is necessary to give several supers for fall honey. If extracted honey was produced during the early honey flow, the supers of empty combs are simply left on the hives to catch the fall honey flow. Those who have produced comb honey and do not wish to have fall honey stored in sections can give an upper story of empty combs or frames of foundation. If these are well filled, this extra story can be left on for winter and spring stores.

Gleaned by Asking

Geo. S. Demuth

Feeding Back Extracted Honey to Finish Unfinished Sections

Question.—I am considering feeding back extracted honey in an effort to have a large number of unfinished sections finished. Should the honey be fed in ordinary 10-pound feed pails? Should it be fed as it comes from the extractor or should it be thinned with water? Is there any danger of the honey in the sections granulating following this feeding?—A. T. Brown, Ontario.

Answer.—Feeding back extracted honey to induce the bees to finish unfinished sections sometimes results quite satisfactorily, while under other conditions it is very disappointing. Not all colonies do good work in finishing, therefore, it is necessary to select the colonies for this work with great care. The colonies should be strong, having young queens and should have the brood-chamber well filled with brood at the beginning of the feeding-back process. If they are not thus well filled, some of the combs should be taken out and dummies put in their place. By noting the manner in which the colonies finish the sections at the close of the season, it is usually possible to select colonies in proper condition which cap the honey white and attach the comb to the wood well. For best results the brood combs in these colonies should be new. This will result in the cappings being whiter than if old, dark brood combs are in the brood-chamber. The bees will handle the honey more readily if it is thinned somewhat, say, one quart of water to a gallon of honey. The water should first be heated so that it can be more readily mixed with the honey. It should be given in a feeder from which the bees will take it more rapidly than they ordinarily do from the 10-pound pail feeder. Perhaps the 10-pound pail feeder with more holes punched in the lid than usual would answer, but a better feeder for this purpose can be made by making a tin pan to fit in an empty super, leaving a half-inch space on each side between the sides of the pan and the sides of the super to form passageways for the bees, then placing in it comb-honey fences, standing in normal position, using enough fences to completely fill the pan. Such a feeder can then be used either below the brood-chamber or above the supers. The bees can go down between the slats of the fences to the syrup as it is lowered without any of them drowning. Comb honey finished by feeding back extracted honey usually granulates early in the fall or winter, and should, therefore, be sold as soon as possible where it will be consumed before cool weather. The feeding should be done during hot weather when there is a dearth of nectar. As a rule, it does not pay to feed back extracted honey to have unfinished sections completed, especially where the unfinished sections can be sold locally at a fair price. Those that are too light to sell locally can be extracted and saved for bait combs next season.

Formaldehyde Gas for Sterilizing Combs Containing American Foul Brood

Question.—Will you give us any further information you have regarding the experiments with formaldehyde gas for sterilizing foul brood combs? I have read the articles in Gleanings in Bee Culture on this subject, including the comments by Jas. I. Hambleton, and before trying this method I would like to have your opinion regarding its safety.—J. F. McHenry, Pennsylvania.

Answer.—Several careful operators have successfully sterilized combs containing American foul brood by the formaldehyde gas method. However, there are so many chances of failure that beekeepers should go slow in depending upon it. Apparently some of those who have failed to obtain complete sterilization by this method did not keep the combs sealed up in the hive-body or air-tight tank a sufficient length of time. Another reason for failure is not having the hive-bodies or tank containing the combs properly sealed, thus permitting the escape of some of the gas. As a rule, the safest thing to do with combs containing American foul brood is either to burn them immediately or drop them into boiling water to render for wax. Under present conditions it is better to look upon anything along this line as experimental work instead of a method for sterilizing combs containing American foul brood in a commercial way, at least, until further development. However, the method may well be applied in sterilizing comb-honey supers or hive-bodies that have been on diseased colonies. For instance, several empty comb-honey supers that have been on diseased colonies could be placed in a pile with all cracks tightly sealed with paraffin, then a pint or more of formaldehyde placed in one of them and the cover sealed. They can be left in this way during the winter and until needed next year when they should be perfectly safe to use again.

Bees Hanging Out at the Entrance

Question.—I have a colony that has filled a full-depth and a shallow extracting super with unsealed or partly sealed honey and it is now drawing out combs in another shallow super, having drawn all combs from foundation. During the past two days they have begun hanging out at the entrance and not as many bees are going to the fields as usual. What is making them hang out? Is it possible that they need more room?—C. W. Mallory, Pennsylvania.

Answer.—The colony may be needing more room; the flowers may be yielding less abundantly; or the colony may be preparing to swarm and the bees loafing because of this. If it is not preparing to swarm and the flowers are still yielding well, the colony certainly needs more room. As the season advances, colonies sometimes become so populous that it is necessary to give a new super every three or four days during a good honey flow. Otherwise, the bees are liable to hang out, especially during the afternoon, when there is no place to put the nectar they bring in.

Filling Five-pound Pails

Question.—In filling five-pound pails I sometimes string some honey on the side of the can so that some is left under the ridge of the cover where it becomes black and has a tinny taste. How can this be avoided?—Gilbert Becker, Michigan.

Answer.—The pail should be filled through a regular honey gate so that the stream can be cut off sharply and completely. If you do not have a tank equipped with a honey gate you can use the honey extractor for this purpose by taking out the reel and cleaning the can thoroughly when it will be ready to use as a tank for filling the five-pound pails.

Laws Relating to Bee Pasture

Question.—Is there a law by which a beekeeper can be made to pay for bee pasture?—W. F. Morgan, Oklahoma.

Answer.—There is no law in any of the states regarding the rights to bee pasture. The only places where bee pasturage is controlled and rented in this country is in the national forests where the government rents locations for beekeeping, giving to the beekeeper exclusive right to the bee pasture within a certain range.

Salt for Bees

Question.—Do bees need salt? If so, how should it be given to them, and in what solution?—Theo. C. Kirkpatrick, Indiana.

Answer.—Just how important it is that bees have salt has never been fully determined. They are often seen around where salt has been put out for stock, especially after a shower, which would indicate that they need some salt. A good way to supply it is to put it into water using enough to make it taste distinctly salty. The water can be placed in a jar and the surface covered with cork chips, such as are used in shipping grapes. The cork chips make it possible for the bees to take the salty water without drowning. The jar can be placed in a sheltered place in the apiary.

Converting Extracted Honey into Comb Honey

Question.—There is a good demand for comb honey in pound boxes here, and I notice several have extracted honey for sale as low as 8c per pound. I can get as high as 35c per pound here for comb honey. Could I buy extracted honey and feed it to my bees to produce comb honey profitably, or would there be too much waste to make it profitable?—A. H. Polhamus, West Virginia.

Answer.—It is doubtful if you would find this profitable, especially if you count the value of your time in the work necessary to carry out such a program. Furthermore, the honey so produced would be liable to granulate soon.

Preventing Fermentation in Comb Honey

Question.—My comb honey absorbed moisture from the air and fermented so that I had to feed it back to the bees. How can I prevent this?—Devoe Smith, Florida.

Answer.—Where there is an excessive amount of moisture in the air, it is sometimes impossible to avoid this trouble entirely. In your locality, it may be necessary to store the honey in a heated room to dry the air surrounding it. When comb honey is stored in a room in which the temperature changes greatly, it is cooled during the night sufficiently to cause slight condensation of moisture on the surface of the comb when warm moisture-laden air comes in contact with it the next day. For this reason it is advisable to pile the supers of honey in tight piles and keep it tightly covered to prevent the circulation of air through it. This, of course, is not necessary when the honey-storage room is kept at a constant temperature.

Stamping Comb-honey Sections

Question.—Is it desirable to stamp each section of comb honey with the weight, color, grade and name of producer?—Nelson A. McClary, Michigan.

Answer.—When comb honey is shipped into another state, each section should be stamped showing the net weight to conform with the federal regulations which apply in interstate shipments. When sold in the state in which it was produced, the state regulations apply. Some states require that the net weight be stamped on each section while others do not. The regulations for each of the states were published in the May, 1929, issue of this journal on page 313. The grade is usually marked on the case only. In building up a local trade, the producer's name should be stamped on each section for advertising purposes, but when the honey is shipped to a wholesale dealer it should not be.

CLASSIFIED ADVERTISEMENTS

Notices will be inserted in the classified columns for 7c per word. You must say you want your advertisement in the classified columns, or we will not be responsible for errors. For special conditions on bee and queen advertising please write us. Copy should be received by 15th of preceding month to insure insertion. Cash with copy if credit has not been previously established.

REGULAR ADVERTISERS DISCONTINUED IN GOOD STANDING

(Temporary advertisers and advertisers of small lots, when discontinued, are not here listed. It is only regular advertisers of regular lines who are here listed when their advertisements are discontinued when they are in good standing.)

Cloverland Apiary, Gulf Coast Bee Co., Fred Leininger & Son, Mayeux Bee Co., Fred W. Muth Co., O. K. Supply Co., P. W. Sowinski, E. D. Townsend.

HONEY FOR SALE

"We do not guarantee the reliability of honey sellers, although we require strict references from them."—From Our Guarantee and Advertising Conditions.

FOR SALE—Comb and extracted honey. H. G. Quirin, Bellevue, Ohio.

FOR SALE—Extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

CLOVER comb and extracted honey for sale. L. M. Hubbard, Onsted, Mich.

CLOVER honey, comb and extracted. Dr. E. Kohn & Son, Grover Hill, Ohio.

CHOICE clover honey, in 5-lb. pails, 60-lb. cans. C. J. Baldridge, Kendaia, N. Y.

NEW crop clover extracted honey in 60-lb. cans. D. R. Townsend, Northstar, Mich.

HONEY FOR SALE, any kind, any quantity. The John G. Paton Co., 217 Broadway, New York City.

NEW crop fancy clover honey, comb and extracted. Finest quality. Write Irvin A. Stoller, Latty, Ohio.

FOR SALE—Fine clover extracted honey in 60-lb. cans and 5-lb. pails and nice white comb honey. H. B. Gable, Romulus, N. Y.

HONEY FOR SALE—All grades, any quantity. H. & S. Honey & Wax Company, Inc., 265 Greenwich St., New York City.

HONEY FOR SALE—White and light amber in 60-lb., 10-lb. and 5-lb. tins. Write for prices. Dadant & Son, Hamilton, Ill.

HONEY FOR SALE—New crop clover extracted now ready. Packed in new cans and cases, 120 pounds to case. Geiser Bros., Dalton, N. Y.

HONEY FOR SALE in 60-lb. tins. White clover at 12c lb.; white sage at 12c lb.; white orange at 14c lb.; extra L. A. sage at 11c lb. Hoffman & Hauck, Inc., Ozone Park, N. Y.

NEW YORK State comb and extracted honey, buckwheat and clover, any quantity, all size packages. Five-pound pails our specialty. A. I. Root Co. of Syracuse, 124 Williams St., Syracuse, N. Y.

FOR SALE—Well ripened white sweet clover honey. Don't let your customers be without honey. The stock we furnish will please them. Write today for prices. Colorado Honey Producers' Association, Denver, Colo.

AMBER and light amber honey. Sample on request. E. F. Hancock, Box 432, Ft. Pierce, Fla.

FOR SALE—Extracted clover honey by pound, ton or car. Sample, 15c. Victor Apiaries, Chaffee, N. D.

MICHIGAN HONEY, new crop of extra fine quality clover extracted honey. Howard Potter, Jr., Ithaca, Mich.

FOR SALE—White clover honey in 60-lb. cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

FANCY white clover extracted honey in 60-lb. cans, 9½c per lb. Lester Dalzell, 622 Russell Ave., Flint, Mich.

NEW honey, white clover in 60-lb. cans, 10c; No. 1 comb, 4¼ sections, per case, $4.50. F. J. Smith, Castalia, Ohio.

OHIO'S finest comb and extracted white clover honey. Prices on request. Sample, 15c. Geo. Morrison, Mandale, Ohio.

WINKLER'S clover honey, new crop, packed in new 60-lb. cans, at 10c lb. Sample, 20c. Winkler Honey Co, Joliet, Ill.

FOR SALE—New white clover extracted honey, also used extracted and comb honey cases. Jessup Honey Farms, Carmel, Ind.

CLOVER honey in new 60-lb. cans; also buckwheat in kegs and cans. Sample on request. B. B. Coggshall, Groton, N. Y.

NEW CROP white clover extracted and chunk comb honey. Write for prices and samples. Kalona Honey Co., Kalona, Iowa.

NEW crop white clover, quality unexcelled, in containers to suit. Send for sample and prices. Henry Stewart, Prophetstown, Ill.

FOR SALE—A1 white clover extracted honey. Two 60-lb. cans per case, 10c per lb. Leonard S. Griggs, 711 Avon St., Flint, Mich.

VERY fine white and alsike clover-blend extracted honey in new 60-lb. cans and 5-lb. pails. Prices on request. Noah Bordner, Holgate, Ohio.

FOR SALE—Finest white clover honey in 60-lb. new cans, 10c per lb. Chunk honey, 12 5-lb. pails, $9.00. Discount on larger lots. Jos. H. Hoehn, Ottoville, Ohio.

NEW CROP SHALLOW FRAME COMB HONEY, also section honey, nice white stock, securely packed, available for shipment now. Colorado Honey Producers' Association, Denver, Colo.

NEW YORK State clover honey. Well-ripened on hives. In new 60-lb. cans, case or carlots. Sample, 10c. Also buckwheat in 160-lb. kegs and 120-lb. cases about Sept. 1. E. L. Lane, Trumansburg, N. Y.

OUR new crop of clover honey, both extracted and comb, is now for sale, in any quantity up to a carload. Also have small amount of buckwheat comb and extracted. Write for prices. H. E. Crowther, Jefferson, Ohio.

HONEY FOR EVERY PURPOSE. We have it in any amount, light amber and white clover basswood, sweet clover, buckwheat. Write us what you need and ask for prices. A. I. Root Co. of Chicago, 224-230 W. Huron St., Chicago, Ill.

TOWNSEND QUALITY clover extracted honey. New crop now ready for the market. Left upon the hives clear through the season, making it ripe, rich and fine-flavored. It doesn't cost much more to buy REAL honey, the kind your customers will ask for more "just like the last." Let us quote you on your needs. We wholesale in case lots and job in carload lots. Several carloads for sale from our 21 bee-yards. Write us your needs and it will be a pleasure for us to tell you just what we can furnish this fine honey for. Address E. D. TOWNSEND & SONS, Northstar, Michigan.

FANCY CLOVER extracted packed in new sixties. One case or a car. J. N. Harris, St. Louis, Michigan.

FOR SALE—Clover extracted honey in 60-lb. cans, 2 cans to case, 9½c, f. o. b. Grandville, Mich. Jay Cowing, Jenison, Mich.

CHOICE new white clover honey in extracted comb and chunk. 1-lb. sample, 25c. No stamps. Prices on request. F. W. Summerfield, Grand Rapids, Ohio.

NEW crop extracted clover honey, in new cans and cases, for sale in case or ton lots. Satisfaction guaranteed. Sample, 20c. Prices on request. Harry C. Kirk, Armstrong, Iowa.

FOR SALE—My crop of clover honey, which is of excellent quality, in new cans and cases. Write for prices and sample, stating quantity wanted. Earl Rulison, R. D. No. 1, Amsterdam, N. Y.

EXTRA heavy fancy white comb, $5.50 case; fancy, white, $5.00; No. 1 white, $4.50; No. 2 white, amber, or No. 1 buckwheat, $3.50; fancy buckwheat, $4.00; packed in carriers of 6 cases each. Clover or basswood extracted, 10c in 60-lb. cans. C. B. Howard, Geneva, N. Y.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTE—All our honey-producing friends should take note of the following from the "Guarantee and Advertising Conditions" of Gleanings in Bee Culture: "We will not guarantee any honey buyer's financial responsibility and advise all beekeepers to sell for cash only or on C. O. D. terms except when the buyer has thoroughly established his credit with the seller."

WANT chunk honey, or comb honey to chunk. A. J. Heard, Wellston, Ga.

WANTED—White or light amber extracted honey. W. I. Boggs, DeSoto, Mo.

HONEY WANTED—State quality, quantity and price. D. Steengrafe, 116 Broad St., New York.

WANTED—White clover comb and extracted. E. W. Peirce Co., 345 Cliffwood Ave., Zanesville, Ohio.

WANTED — Clover honey extracted, any quantity. Send sample and lowest cash price. F. M. Babcock, Fredonia, N. Y.

WANTED—Carlots of honey. State quantity, shipping point, and price. Mail sample. Hamilton, Wallace & Bryant, Los Angeles, Cal.

BEESWAX WANTED — Will accept shipments of beeswax at regular market price in exchange for bee supplies. The A. I. Root Co., Medina, Ohio.

WANTED—A car or less quantity of white honey, in 60-lb. cans. Mail sample and quote lowest cash price for same. J. S. Bulkley, Birmingham, Mich.

HONEY WANTED — Extracted clover and buckwheat. State quantity and how packed and mail sample. Hoffman & Hauck Division, 646 Dean Street, Brooklyn, N. Y.

HONEY PRODUCERS—Tell us what you have to offer in honey. Either comb honey or extracted in 60-lb. tins. State quantity, quality and lowest prices. C. F. Schobert & Co., 407 Broadway, Kansas City, Mo.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., Pearl and Walnut Sts., Cincinnati, Ohio.

FOR SALE

FOR SALE—Bee hives and bee equipment, cheap. C. Maier, 278 E. Fulton St., Gloversville, N. Y.

FOR SALE—Four-frame Lewis-Markle extractor at a bargain. Excellent condition. Ross B. Scott, Lagrange, Ind.

MAKE queen introduction SURE. One SAFIN cage by mail, 25c; five for $1.00. Allen Latham, Norwichtown, Conn.

FOR SALE—25 full-depth 10-frame Root extracting supers with drawn comb, wired frames, no disease. Price $3.50, f. o. b. Bremen, Ohio. Westerman Bros., Bremen, Ohio.

FORMALDEHYDE U. S. P.—Used for effective fumigation of bee hives. Write for information and prices. Instructions furnished. Kali Mfg. Co., 1410 N. Front St., Philadelphia, Pa.

ROBINSON'S comb foundation will please the bees and the price will please the beekeeper. Wax worked at lowest rates. E. S. Robinson, Mayville, Chau. Co., N. Y.

BEST quality bee supplies, attractive prices, prompt shipment. Illustrated catalog on request. We buy beeswax at all times and remit promptly. The Colorado Honey Producers' Association, Denver, Colo.

FOR SALE—4-frame power Lewis-Markle extractor, just like new, has been used only to extract 27,000 lbs.; guaranteed to be in A1 condition. Size of baskets, 9½x17⅝. Price, $110.00. C. H. Harlan, Spring Valley, Wis.

METAL EYELETS in your frames will stop the WIRE SAG which is responsible for most SAGGED COMBS. METAL EYELETS, per 1000, 60c. Handy tool for inserting eyelets, 25c; postage, 3c per 1000. Superior Honey Co., Ogden, Utah.

FOR SALE — Fine quality queen-mailing cages; Root quality bee supplies; both comb and extracted honey. Orders filled promptly. Write us or drive over on M. 53, fifty miles north of Detroit. Hamilton Bee Supply Co., Almont, Mich.

BEES AND QUEENS FOR SALE

WHOLE colonies of bees, if advertised for sale in these columns, must either be guaranteed free from disease, or, if not so guaranteed, the exact condition of the bees and the conditions of sale must be clearly stated in the advertisement; or it will be satisfactory if the advertiser will agree to furnish a certificate of health from some authorized bee inspector at time of sale.

LEATHER-COLORED Italian queens, $2.00, until June 1; after, $1.00; tested, $2.00. A. W. Yates, 15 Chapman St., Hartford, Conn.

REACROFT selected queens. One, 90c; ten, $8.50. Quantity prices on application. Satisfaction guaranteed. Geo. H. Rea, Reynoldsville, Pa.

FOR SALE—TWIN-DEL QUALITY QUEENS and ROOT QUALITY BEEKEEPERS' SUPPLIES. Prompt service. W. G. Lauver, Middletown, Pa.

THREE-BANDED Italian bees. Two-pound package with queen, $4.25; one untested queen, $1.00; one tested queen, $1.50. J. Allen, Catherine, Ala.

GOLDEN Italian queens for sale. 1, $1.00; 6, $5.00; 12, $10.00; 100, $75.00. Package bees in season, 20 per cent to book your order for spring delivery. J. F. Rogers, Greenville, R. F. D. No. 3, Ala.

ALABAMA queens, bright Italians, bred by a vocational breeder. 1, $1.00; 6, $5.00; 12, $10.00; 100, $75.00. Try them and you will order more. Safe arrival guaranteed. H. B. Talley, R. F. D. No. 4, Greenville, Ala.

FOR SALE—100 colonies bees, guaranteed disease free. J. J. Holt Co., St. Louis, Mo.

QUEENS and package bees. "Yancey Hustlers." Caney Valley Apiaries, Bay City, Tex.

NOTICE—Please do not send me any more orders for queen bees as I will not be shipping any more this season. Robt. B. Spicer, Wharton, N. J.

IF you understand beekeeping, will sell at 50c to 60c on the $1.00. Have best outfit on two counts in Iowa; first extracting over 10,000 lbs. Delbert E. Lhommedieu, Colo, Iowa.

BRIGHT three-banded Italian queens, the kind that pleases every one. Balance of season, 70c each; 12, 65c each; 50, 60c each; 100, 55c each. Health certificate, safe arrival, satisfaction guaranteed. Taylor Apiaries, Luverne, Ala.

FOR SALE—600 colonies bees with extracting equipment, fully equipped, located in the heart of the sweet clover belt of North Dakota. With crop or without. Guaranteed no disease. Reason for selling, other interests. Write F. S., care Gleanings, Medina, Ohio.

DIEMER'S Bright Italian Queens, before June 15th, $1.00 each; tested, $1.50. After June 15th, 75c each. Sent in double barrel introducing cage. Worth-while information in circular, which gives prices of package bees. J. F. & G. G. Diemer, Liberty, Mo.

ITALIAN bees and queens. Two-pound package without queen, $3.00; untested queen, $1.00; tested, $1.50. Add price of queen wanted. Safe arrival after May 10. Observation hives with bees and queen, $8.00. Birdie M. Hartle, 924 Pleasant St., Reynoldsville, Pa.

FOR SALE—Three-banded Italian queens, Blue Ribbon kind, took first premium at North Carolina State Fair, 90c each; 6, $4.50; 12 or more, 65c each. State inspected, safe arrival and satisfaction guaranteed. Pleasant Garden Apiaries, Pleasant Garden, N. C. Carl E. Causey, Manager.

COMBLESS package bees shipped on sugar syrup with Italian queen. 2-lb. package, $3.50; ten or more, $3.00 each; 3-lb. package, $4.25; ten or more, $3.75 each. Health certificate attached. Safe arrival guaranteed. 10% with order, balance before shipping. John A. Williams, Box 178, Oakdale, La.

IF you want bees that are gentle to handle, good honey-gatherers, and beautiful to look at, my strain of golden Italians will please you. Prices: Untested, 90c; six, $4.80; twelve to forty-nine, 70c each; fifty or more, 65c each. Tested, $1.25 each. Health certificate, safe arrival and satisfaction. Hazel V. Bonkemeyer, R. F. D. No. 2, Randleman, N. C.

CHOICE bright Italian queens that are a pleasure to work with and be proud to own. Requeen with stock that has been bred and selected in the North the past 26 years for good winterers, hustlers, gentleness, and fine color. One queen, $1.00; dozen, $10.00; breeders, $10 each. Emil W. Gutekunst, Colden, N. Y.

GOLDEN Italian queens. Untested, 90c; 6, $4.75; 12 for $8.25. Tested, $1.25. Select tested, $2.25. State inspected. Satisfaction guaranteed. Sam Hinshaw & Son, Randleman, N. C.

GOLDEN ITALIAN QUEENS. Producing large beautiful bees. Solid yellow to tip. Queens untested, $1.25; select untested, $1.50; select tested, $3.00 each. Write for circular for bees. Dr. White Bee Company, Sandia, Texas.

GOLDEN Italian queens of highest quality and most careful breeding. Producing large hustling bees, very gentle and beautiful. Yellow to the tip. My queens are from a proven honey producing strain. Select untested, $1.00 each; 6 to 12, 90c each; 12 or more, 80c each; 100 for $70. Select tested, $2.50 each. Safe arrival and satisfaction guaranteed. Try my goldens, they will please you. W. C. Wright, Holt, Mo.

QUEENS—Pure Italian, gentle and hardy strain, 50c each, any number. Louisiana Southern Bee Farm, Baton Rouge, La.

"SHE-SUITS-ME" Italian queens. One, 80c; 6, $4.00. Send for circular. See advertisement in January issue. Allen Latham, Norwichtown, Conn.

SERVICEABLE, money-worth Italian queens. Select untested, 50c each, in small quantities. Less for large amounts. Write for free circular. R. V. Stearns, Brady, Texas.

BRIGHT Italian queens, ones that are guaranteed to please you or your money refunded. Untested, any number, 65c each; tested, $1.00 each. Honoraville Bee Co., Honoraville, Ala.

GOLDEN Italian queens. Bees very gentle and cap honey white. State inspected. Satisfaction guaranteed. Tested, $1.25; select tested, $2.25; untested, 90c each; 6, $4.80; 12 or more, 70c each. D. T. Gaster, Randleman, N. C.

SUNNYLAND QUEENS possess the qualities that make beekeeping profitable. They have proven their merits in every part of America, Cuba and Europe. Can be bought for 50c each. Satisfaction guaranteed. Crenshaw County Apiaries, Rutledge, Ala.

I am offering my golden Italian queens for balance of 1929: Untested, any number, at 75c each. They are still the big bright hustling kind (the kind that get the honey). I guarantee them to be the best that money can buy, or money refunded. E. F. Day, Honoraville, Ala.

APIARY FOR SALE—On account of the fact that my law practice now demands so much of my time, I am offering for sale my entire apiary, consisting of something over 700 colonies of bees in ten-frame hives, located in sixteen yards, together with all accessories. Bees guaranteed free from disease. Good location in South Georgia near the Florida line, and have no other commercial beekeeper in my territory. Will not sell on credit, but anyone with cash can get a bargain. N. L. Stapleton, Colquitt, Ga.

ROOT EXTRACTOR COLUMN

(A free advertising service to Root customers who wish to dispose of their present extractors as they are purchasing Root machines of greater capacity.)

ROOT four-frame reversible hand power extractor, pockets, 9½"; as good as new. Crated for $50.00. I. R. VanDevier, Medina, Ohio.

HELP WANTED

WANTED—Man to work with bees in my Michigan apiaries. Please state age and salary expected in first letter. Board and room furnished. L. M. Hubbard, Onsted, Mich.

SITUATION WANTED

FOR SALE—My services as beekeeper, with some experience, for season of 1930, possibly fall of 1929. Beekeeper, Keuka, N. Y., Box 33.

MISCELLANEOUS

BEE HUNTERS—Use my Beescent and instructions. One man did, and found three bee trees in one afternoon. Will Grover, Bristol, Vt.

THE BEE WORLD—The leading bee journal in Britain and the only international bee-review in existence. It is read, re-read and treasured. Will it not appeal to you? Specimen copy free from the publishers. Send us a postcard today. It is well worth your little trouble. The Apis Club, Watergate House, Water St., Tudor St., London E. C. 4, England.

Sour Honey

Me and Ab are so down in the mouth as I can't write. Plans submitted by well-meanin friends for rehabilitatin of our financial aint practicle and seeminly nobody will go shares on a coon dog. Things

(Continued on page 540.)

Big Profits MAKING HOME MADE CANDIES!

What Maysel McClanahan Did—YOU Can DO!

"I have my candy on sale in two stores. It sells like hot cakes. I have saved $350 in a few months, besides filling my wardrobe with pretty frocks. All of it due to you."—MAYSEL McCLANAHAN.

You Can Start Right at Home!

Turn your kitchen into a small candy shop—make big profits from the very beginning. Candy costs 14 cents a pound to make, sells for 60 cents. Successful retired candy manufacturer teaches you secrets of candy making—right in your own home. Equal opportunities for men and women. Many now wealthy started with practically no capital—YOU can do the same. We furnish tools and show you how to quickly sell your candy at a big profit. Fascinating FREE book gives full details.

Capitol Candy School
DEPT. AS-2234 WASHINGTON, D.C.

Bright Italian Bees and Queens

Queens—GOLDEN—Queens

The kind you'll be glad you bought.

They are properly raised; their progeny are gentle, pleasing to look at; a pleasure to handle them; best of honey producers; and they winter well.

Not a dissatisfied customer.

1 select untested queen $1.00
2 to 9 ..... .80
10 and over ..... .70

Package bees shipped promptly. Prices and testimonials furnished.

STEVENSON'S APIARIES
WESTWEGO, LA.

Queens 40c Each

High-grade Italians, too. Bred by long experienced breeder from best select stock. Every queen guaranteed to please.

G. H. MERRILL APIARIES, Greenville, S. C.

Serviceable, money-worth Italian queens. Select untested, 50c each, in small quantities. Less for large amounts. Write for free circular.

R. V. STEARNS, BRADY, TEXAS

GRAY CAUCASIAN QUEENS

Mated to golden drones. They build up a strong colony in fall and early spring; gentle, winter well, capping comb honey very white. All queens big-bodied and heavy layers. All untested, $1.00 each, 6 for $5. Special prices larger quantities.

R. W. BALDWIN, R. F. D. NO. 4, GREENCASTLE, IND.

Golden Queens

BEAUTIFUL, GENTLE AND GOOD HONEY-GATHERERS

Select (one grade) young laying queen, $1.00 each; five for 80c each; ten, 75c each; twenty or more, 65c each.

We have specially made, patent pending, safe introducing cage which is also self-introducing, in which we guarantee safe introduction even to laying worker colonies. The price for queens in this cage is 50c additional. All queens mailed in large cages unless smaller size specified. No disease. Health certificate. Safe arrival and satisfaction.

The Golden Apiaries

John T. Knight, Mgr. LETOHATCHIE, ALA.

QUEENS

Yancey Hustlers
Record Honey-Makers

Untested, 75c each; $8.00 per dozen; $50.00 per hundred.

Tested, $1.25 each; $12.00 per dozen.

Package bees at any time.

Quick service and satisfaction guaranteed.

CANEY VALLEY APIARIES
BAY CITY, TEXAS

Norman Bros.' Queens

50c each

By Return Mail--Any Number

These queens are bred for quality rather than quantity by experienced queen-breeders. We have spared neither labor nor expense to make them the very best. Safe arrival and satisfaction guaranteed in U. S. A. and Canada. If not, return them, and we will replace or refund your money.

Norman Bros.' Apiaries
T. L. Norman, Mgr. NAFTEL, ALA.

A Wonderful Queen

Daughters of an ultra-violet ray treated mother. Mated in our American Beauty yard of Italians and producing the gentlest bees we ever saw. For two seasons we have pulled them apart to show visitors. No smoke used. Very prolific. Great honey-gatherers of beautiful sections. Have run over 112 pounds per colony up to July 10. Don't fail to winter some of these queens. They are worth the money if you don't get extra gentle ones. Untested, $1.00 each. We guarantee satisfaction. We refer to Marshall National Bank.

E. F. QUIGLEY APIARIES CO.
UNIONVILLE MISSOURI

Italian Queens

THREE-BANDED

For the remainder of the season, 50c each, one or one hundred. Safe arrival. No disease and satisfaction guaranteed.

THE CROWVILLE APIARIES
J. J. Scott, Prop. Winnsboro, La. Rt. 1.

SOUR HONEY
(Continued from page 539.)

were never really so orful bad afore as now. So I let the others write this time.

* * *

First, Mr. Brown resumes his great invenshun reminissenses.

(Hive-lifter Story—Part 2.)
Willow Springs, Ill., June 26, 1929.

Dear Mr. Drone:

In my letter last month I left off with the tall hive suspended by my 3-legged stump-puller type of hive-lifter. In this letter I will demonstrate how this same device can be used as a hive mover.

I had that 7-story hive hanging by a mere rope, gripped by a double lasso around the bottom section, the bottom-board sticking on by its bee-glue. I was pretty well pleased with myself to think that I now had a device that was going to reduce the strain on a beekeeper's back. I had four wheels in my pulley-blocks.

(Continued on page 541.)

Patents

Pat. Counsel of The A. I. Root Co. Practice in Patent Office and Court.
CHAS. J. WILLIAMSON
MacLachlan Building Washington, D. C.

Beekeepers, Take Notice

Last month I announced the establishing of my Bee and Queen-rearing Apiaries in the South. This month I wish to make a special offer to induce beekeepers to try our strain and learn of the quality I'm offering.

These queens are the same I have used in my Michigan Apiaries for the last three years. I have made fine crops of honey each season.

PRICE, balance of season: 1 to 24, 50c; 25 to 49, 47c each; 50 or more, 45c each. Three-band Italians—profitable honey-gatherers. State inspected. Satisfaction guaranteed.

L. M. HUBBARD
Box 134, LUVERNE, ALA., or ONSTED, MICH.

Better-Bred Italian Queens, 45c each

My queens are guaranteed to give satisfaction. I ship no culls, no old queens, no virgins. Nothing but the best. Why not try them and save the difference. Sample, 40c.

A. L. Webb, Prop. CALVERT APIARIES, Calvert, Alabama

Every Beekeeper

has some pet colonies—colonies that have done better than the rest—that he would like to breed from. So have we. We gathered up these colonies from the various yards and took them to our queen yard. One colony we selected and marked "Breeder" during the honey season this year. We kill the poorer cells and unpromising virgins. If you believe in "Selection" order OUR QUEENS, 50c each, any quantity.

A. J. Heard

Wellston Georgia

Queens, 50c

I want your business and I don't know any better way of getting it than selling you these queens at this price. They are raised by myself, and I guarantee them to be the equal of any queens at any price.

A. E. SHAW
SHANNON - MISSISSIPPI

SOUR HONEY

(Continued from page 540.)

I proceed to move the suspended hive back about 10 feet by walking the tripod legs, one leg at a time. I lift on one leg. Great guns! I can't budge it. I begin to feel glad that I selected a time for that big test when my wife would be too busy getting supper to know what I was trying to do. "Now this time it's going to go." I resume lifting on the tripod leg. Sure enough, I move it six inches. I rest a moment and tackle the next leg and move that one some distance. I do some strenuous lifting on the third leg. Suddenly I am aware of a queer sensation: it seems as though the hive has lost all its weight and is about to float off into space. How strange! Can I be dreaming? I can hear more bees talking among themselves up at the top-entrance; they are saying: "Sure, there IS something going on out here."

That big stack of supers and hive-bodies is

(Continued on page 542.)

Williams' Queens

PRODUCE PROFITABLE COLONIES

They are bred for honey gathering, long life, and hardiness.

We know how to produce the long slender-bodied queens such as you find at the head of your best colonies.

Health certificate with every shipment. Satisfaction guaranteed.

Select untested Italian queens, 50c each. Quantity prices on request.

P. M. Williams

MT. WILLING ALABAMA

Mott's Northern-bred Italian Queens

Reared 350 feet from the postoffice. Your orders on our desk in 20 minutes from the train. Saves a day in and day out by R. F. D. clerks. Queens selected and guaranteed purely mated. Why buy hybrids? 24 years looking for the best. See list.

April and May, $1.25; 12, $13.00. After June 1, $1.00; 6, $5.75; 12, $11.50; 50, $45.00; 100, $85.00. Sel. tested, $2.00. Virgins, 50c. No disease, safe delivery, and satisfaction guaranteed.

E. E. MOTT & SON, GLENWOOD, MICH.

For Sale

Queen Bees

Nothing but the best.

50 Cents Each

As long as they last.

Graydon Bros.

Route 4, Greenville, Alabama

..Italian Queens..

THREE-BANDED ONLY

Purely mated, health certified, fully guaranteed to give you satisfaction.

...50 cents each...

ANY QUANTITY

Uriah Apiaries

BOX 67 URIAH, ALA.

Get Running's Queens

And Get Honey—They Satisfy

The kind WE use in our extensive Michigan Apiaries, where we produce honey by the carload.

Choice untested Italian Queens, 75c each; $8.40 per dozen. Tested, 50c each extra. Write for prices in large quantities.

All queens sent from Sumterville, Ala. Address for quick service

David Running

SUMTERVILLE, ALABAMA

Berry's Reliable

Queen Bees

FOR IMMEDIATE SHIPMENT

50c Each Any Number 50c Each

Thirty-five Years' of Selection from the Best Our Three-banded Italian Queens

After all these years of careful breeding, not always from a commercial standpoint, but as large honey producers, therefore breeding for our own use, we have a pure Three-banded Strain of Italian bees unexcelled for gentleness, disease-resistance and honey production. Our breeding queens are those selected from thousands of honey producing colonies, located in Nebraska, Wisconsin, Iowa, and Manitoba, Canada. In this way we are able not only to test out our strain from a honey production standpoint but from a climatic standpoint as well. You will find our queens hardy and therefore able to stand the hardest winters.

We sell only selected queens. The culls we kill. Safe arrival we guarantee and satisfaction on everything we ship. A certificate of health accompanies each shipment. We clip wings of queens on request without charge. Write for circular price list and prices on hundred lots of queens.

M. C. Berry & Co.

BOX 697 MONTGOMERY, ALA.

Mack's Queens

(3-BAND ITALIANS)

Have won favor and fancy in practically every honey-producing section in the U. S. A. They are so popular because they are so **HARDY, GENTLE** and **PROLIFIC. NORTHERN-BRED** is the reason. They are so good that we guarantee them to please any beekeeper this side of Mars. That's a lot of territory, but try to produce the same quality yourself for less than $1.00 each. Yet here they go at

60c each
$6.60 a doz.
$50.00 a 100

If they don't please you, return them and we will refund your money and pay you for your time and trouble besides.

Herman McConnell

(The Bee & Honey Man)

ROBINSON—RTE. 2—ILLINOIS

Telegraph and Telephone, Oblong, Ill.

Selected Untested Queens

50c each

Any Number

These queens are backed with a **MONEY-BACK GUARANTEE** and you may feel sure that we will back this guarantee to the limit. Our **MOTTO** is to **SATISFY** you so that you will join our family of **SATISFIED** users of **SMITH'S SUPERIOR QUEENS** year after year. All you have to do is to forward us your order and we will do the rest. Order direct from these **MONEY-SAVING PRICES.**

N. B. Smith & Co.

Calhoun, Alabama

1 to 1000, selected untested queens, 50c. Tested, $1.00.

SOUR HONEY

(Continued from page 541.)

balancing on two tripod-legs and is about to take a tumble with 100,000 bees in it. I make a frantic grab and and try to surround the hive with my open arms, but I am just about one-half second too late. Now comes a big bump against another tall hive—a crash to the ground, and there lies the hive in scattered sections.

Usually, when I get in a pinch I call to my wife to give me a hand. But why should I offer my wife another opportunity to crow for years to come about the time that she untangled me from my bees? I don't need her help anyway, come to think about it, even if she is an expert beekeeper. All I've got to do is to set the bot-

(Continued on page 543.)

QUEENS QUEENS

Palmetto three-band Italians reared from imported stock, backed by 27 years of experience. My prices are in line with the price of honey. Booking orders now for June, July and August delivery at following prices: 50c each; half dozen, $2.80; dozen, $5.40; 20 to 100, 40c each.

C. G. ELLISON, BELTON, S. C.

For Successful Wintering

and next year's honey crop, requeen this month with Hardy Iobred Italians.

Untested
$1.00 EACH
5 or more, 80c each.

Chas. L. Ruschill
Colfax, Iowa
25 years' experience

Carniolans

Gentle Prolific
Wonderful Workers

Gentle—can be handled most of the time without a veil. Wonderful workers—average surplus 1927 was 180 lbs. per colony. Many reports from customers better than this. Build very white combs—fine for comb honey production.

22 years breeding Carniolans. Breeders imported each season—Jan Strgar strain—the foremost queen-breeder in Carniola. M. Ambrozic strain, the most extensive honey producer in Carniola, operating over 1000 colonies. We have supplied queens to many Agricultural Colleges and State Experiment Stations, to the Provincial Experiment Stations and Farm of Canada, and to the Japanese Government for breeding purposes. We probably have the finest Carniolans in the United States. Ask for our free paper, "Merits of the Carniolan Bee."

Untested queens, one	**$1.25**
Untested queens, six	**6.60**
Untested queens, dozen	**12.00**
Tested queens, each	**2.00**

Ask for prices in larger quantity.

Albert G. Hann, Glen Gardner, N. J.

SOUR HONEY

(Continuel from page 542.)

tom-board where I want it and pile on the supers and hive-bodies—nothing to it. Thanks to the self-spacing Hoffman frames and the heavier wire now used in wiring frames, there wasn't a bit of harm done—no comb broken.

I was not equipped with a smoker and a bee-veil.

I stand gazing intensely at the wrecked hive, and give a quick backward glance toward the house, 200 feet away, to see if the crash of the big hive and 12-foot hive-lifter has attracted anybody's attention. I hear the clatter of supper dishes and know friend wife is busy and unaware that I, too, am liable to be busy at any moment. The sun has just gone down and the moon is plainly visible in the east. A few late home-coming bees are sailing around in bewil-

(Continued on page 544.)

JAY SMITH'S

Queens

We can now give prompt service on high-grade Italian and Carniolan queens. They are pleasing others, they can not fail to please you.

Prices: 1 to 9 inclusive, $1.25 each; 10 to 24 inclusive, $1.20 each; 25 to 49 inclusive, $1.15 each; 50 to 99 inclusive, $1.10 each; 100 or more, $1.00 each. Breeding queens, service guaranteed for season, $10.00 each.

Jay Smith

ROUTE 3. VINCENNES, INDIANA

The Foundation of Successful Beekeeping

Beekeeping authorities agree that young queens of good quality are essential for better wintering and good honey crops.

Good queens and good beekeeping are inseparable.

There is nothing else like Cutts' queens. They are distinctive in quality and character.

They are your big help for better crops and bigger profits.

1 untested, 80c; 12 for $9.00. Tested, $1.50 each.

Description and complete price list, also prices on quantities, upon request. Safe arrival and satisfaction guaranteed. Health certificate with each shipment.

J. M. Cutts & Sons

R. F. D. 1.

Montgomery, Ala.

4% BANKING by MAIL

THE HOME OF THE HONEY BEE

There's a Mail Box Near You

---it will serve you as your "bank" if you carry your Savings Account here.

E. B. SPITZER, PRESIDENT
E. R. ROOT, VICE-PRES.
H. E. AYLARD, CASHIER

The SAVINGS DEPOSIT BANK CO. MEDINA OHIO

TIN CANS *and* PAILS

BEST QUALITY ON THE MARKET--JULY 1st, 1929

In Strong Dust-Proof Cartons---Pails with Sure-On Bails

	Shipment from Grand Rapids			Shipment from Chicago		
	Per 100	Per 500	Per 1000	Per 100	Per 500	Per 1000
2½-lb. cans, 100 in carton	$3.75	$17.75	$34.00	$3.25	$15.75	$30.80
5-lb. pails, 50 in carton	6.50	31.35	60.00	5.75	27.50	53.75
10-lb. pails, 50 in carton	9.50	46.00	88.25	8.00	39.25	76.75

	From Grand Rapids		From Chicago or Detroit		
	One box	Ten boxes	Ten boxes	50 boxes	100 boxes
2½-lb. cans, 24 in wood box	$1.15	$10.00	$9.50	$45.00	
5-lb. pails, 12 in wood box	1.10	10.50	9.00	44.00	
10-lb. pails, 6 in wood box	.90	8.00	7.00	32.50	
60-lb. cans, 2 in wood box	1.10	10.00	9.00	43.50	85.00
50-bulk crate	Per crate, $17.50		Per crate, $15.00		

A. G. Woodman Co. :: Grand Rapids, Mich.

Important

DO YOU KNOW YOUR QUEENS?

Young queens introduced now mean larger honey crops for 1930. We offer them cheaper than you can rear them. Our queens are bred from record honey-gathering Italian stock.

PRICES

Untested, each ....50c, any number
Tested, each.....$1.00 any number
Breeders, each... 5.00 any number

100% satisfaction and delivery guaranteed.

Citronelle Bee Company, Inc.
Citronelle, Alabama.

SOUR HONEY

(Continued from page 543.)

derment saying: "What the heck! Where is our home?"

It occurs to me that I ought to have a bee-veil and a smoker, and I go to the shop without loitering on the way. I am trailed by a constantly increasing number of bees. I put on my bee-veil. This seems to be the signal for the bees to begin business in earnest. They discover the holes in it at once and the back of my neck is beginning to feel like a pin-cushion. I select my wife's big Jumbo smoker which she bought for her own personal use. (I have my orders not to use her smoker.) Now I've got the smoker working. I sally forth in a big white smoke-cloud to concern myself with the scattered sections of the capsized hive. These bees are just recovering from their shock and are crawling out to see what it is all about. Some of them are angry and I hear the word "damn," in bee language. I set the bottom-board where I want the hive to stand and proceed to pile the heavy supers upon it. I make

(Continued on page 545.)

Winter for 50c

Any number, good untested queens, 50c each.
PUT THEM IN NOW AND BE READY FOR WINTER.
Send your order to

D. W. Howell
SHELLMAN - - GEORGIA

Morrison's Northern Queens

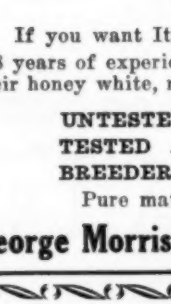
Strictly Three-banded Stock

If you want Italian queens with years of selecting and breeding back of them (18 years of experience) for gentleness, honey gathering, less swarming and capping their honey white, requeen with Morrison's line-bred stock.

UNTESTED ..... **$0.60 each**
TESTED ..... **1.25 each**
BREEDERS ..... **5.00 each**

Pure mating, safe arrival and perfect satisfaction guaranteed.

George Morrison, P. O. Box 65 - - Mandale, Ohio



Connecticut Queens

—BRED FOR PRODUCTION—

Three-banded Italians that will produce workers of real merit. 1 Select Untested, 80c each; 6, $4.50; 12, $8.00; 50 to 100, 60c each. Export queens, $1.00 each. Special attention given to export shipments. Satisfaction guaranteed.

A. E. Crandall - - Berlin, Conn.

SOUR HONEY

(Continued from page 544.)

frequent halts to free one hand to give myself a slap where my pants stretch tight when bending over. I keep having a feeling as though somebody was sticking needles into me back there. I am getting peppered with stings. I hope the job is soon over with. And now my pine smoker fuel has burned out and the smoker is useless. For one consolation I have a feeling that I may be getting my money's worth in vaccination against rheumatism in case there should be an epidemic of it. That's worth considering.

Now I've come to the real job. The supers are stacked six stories high and the Jumbo hive-body must go on the top of the pile. To save time I will not set up my hive hoister. The thing to do under all the circumstances is to grab up that Jumbo hive-body and slap it up on that pile of supers and the job is done before I could get stung any more than—oh, say maybe 25 times, but what the heck is 25 stings when a fellow is already stung over 150 times!

E. W. BROWN.

(To be continued.)

* * *

531 N. University Ave.,
Provo, Utah, June 4, 1929.

Dear Old Drone:

Noting your "poeticle" reaction to the

(Continued on page 546.)

The Apiarist's Friend

GERMAN SCYTHES AND SICKLES, with "Dangel" cutting edge, permit cutting of grass in the apiary with minimum disturbance of the colonies. Catalog on request.

The Marugg Co., Dept. B, Tracy City, Tenn.

Honey Containers

2½-lb. cans, per reshipp'g case of 24	$1.05
2½-lb. cans, per carton of 100	3.80
5-lb. pails, per reshipping case of 12,	1.05
5-lb. pails, per carton of 50	3.20
5-lb. pails, per carton of 100	6.30
10-lb. pails, per reshipp'g case of 6.	.80
10-lb. pails, per carton of 50	4.60
60-lb. square cans, in bulk, each	.35
60-lb. square cans, per case of 1 can.	.60
60-lb. square cans, per case of 2 cans	1.05
24-oz. round glass jars, per case of 24	1.60
16-oz. round glass jars, per case of 24	1.25
6½-oz. tin-top tumblers, per case of 48	1.50

All above prices are F. O. B. Boyd, Wis.

Prompt shipment guaranteed.

Write for prices on comb honey shipping cases.

August Lotz Company

BOYD **WISCONSIN**

Honey Containers

2½-lb. cans, per case	$1.15
2½-lb. cans, per carton of 100.	4.00
5-lb. pails, per case of 12	1.10
5-lb. pails, per carton of 50	3.25
5-lb. pails, per carton of 100	6.25
10-lb. pails, per case of 6	.90
10-lb. pails, per carton of 50	4.60
10-lb. pails, per carton of 100.	9.00
5-gal. square cans, one in a case	.75
5-gal. square cans, per case of 2	1.10

Glass Jars

½-lb. 24 in a reshipping case, per case	$0.90
1-lb. 24 in a reshipping case, per case	1.20
2-lb. 12 in a reshipping case, per case	.85

Offered for shipment in original packages either from Reedsville, Wis., or direct from factory. Write for quantity prices.

A. H. Rusch & Son Co.

REEDSVILLE **WISCONSIN**

Select Queens

Our buckwheat honey flow is now on and we are producing the finest queens of the season and giving good service. Our prices remain the same but the quality of our stock we are constantly improving and we guarantee safe arrival and your money's worth.

Prices: Select untested Italian queens: 1, $1.00; 5-10, 90c each; 10-25, 80c each; 25-100, 75c each; 100, 70c each; tested queens, $1.50; breeding queens, $5.00.

J. B. Hollopeter

Rockton **Pennsylvania**

Welcome to the Penna. State Beekeepers' Summer Picnic August 16 at Hollopeter's queen-rearing apiary.

Untested Queens

Any Number

40c each

BY RETURN MAIL

Thrifty, Healthy, Prolific

Three-banded Italians

Select untested queens, 45c each, any number.

Tested queens, $1.00 each.

Two-pound packages with select untested queen, 1-12, $2.25 each; 12-100, $2.00 each.

Three-pound packages with select queen, 1-12, $3.25 each; 12-100, $3.00 each.

I have the experience, labor and equipment to give you satisfactory service. Safe arrival guaranteed in U. S. and Canada. Matings guaranteed pure, replacement made or money refunded on request. Health certificate furnished.

C. B. Collier, Ramer, Ala.

KNIGHT'S QUEENS

LINE-BRED, THREE-BANDED LEATHER-COLORED ITALIANS

The best honey-gatherers, gentle, prolific and hardy. My queens are carefully reared and selected, and are really worth more than the average queens advertised. I guarantee satisfaction.

PRICES:

1 select (one grade) young laying queen . . $1.00
5 sel. (one grade) young laying queens, ea. .80
10 sel. (one grade) young laying queens, ea. .75
20 or more select (one grade) young laying queens, each 65

All queens sent in large six-hole cages unless smaller size specified. No charge for clipping. No disease. Health certificate. Pure mating, safe arrival and satisfaction guaranteed.

Jasper Knight

Hayneville Alabama

SOUR HONEY

(Continued from page 545.)

gloom and disappointment occasioned by the precarious condition of the said Flory and Billy, I feel constrained to wax a bit "poeticle" myself, so here goes:

The saddest words of tongue or pen,
Or Webster's dictionary,
Are not too sad to use again
In an obituary.

And I shall surely rack my brain
For a vocabulary
Of words to use to 'spress my pain,
Should fate be arbitrary.

The road of F. B. management,
Like that to Tipperary,
Is long, and steep, and muchly bent—
Not revolutionary.

We need some short cuts in this trail,
So steep, and rough, and hilly;
An F. B. dog to wag his tail,
Like Flory dear or Billy.

In finding these two F. B. pups
You reached a great achievement:
And should they drink the bitter cup,
We'd share your sad bereavement.

We'll hardly sleep another wink,
Or other subject mention,

(Continued on page 547.)

Queens Queens

Select untested, 60 cents each, balance of season. Tested, $1.25 each. Satisfaction guaranteed.

Middle Tennessee Apiaries

Leo C. Parks, Mgr. Spring Hill, Tenn.

Queens
Queens

Forehand's 3-band

Italians

The very best at the lowest price possible for remainder of season.

1 to 12 selected untested queens, 55c each; 12 to 25, 50c each.

Six selected untested queens will be GIVEN ABSOLUTELY FREE with each order for 25 or more.

Safe delivery and perfect satisfaction guaranteed in U. S. and Canada.

N. Forehand

Gonzalez Florida

SOUR HONEY

(Continued from page 546.)

Until we hear they're off the "brink"—
Oh dear, this is suspension!

Just think what science will have lost
If they bump off forever!
The wheels of progress, moved at cost,
May roll again—ah, never!

We'll hope for the best, however.
Yours in the interest of science,
J. Fleming Wakefield.

You know afore this, Mr. Wakefield, how they both deseased and yet me and Ab have to live on and on and on.

* * *

Ab has a proposishun from Losson Days of Jeffersonville, O., to breed a new strain of queens from bees as feed on dandylions in old Joe Benson's 50-acre mule pasture as is his neighborhood. He says these mule dandylions have a awful kick

(Continued on page 548.)

Harrison's Golden Queens

The kind that up-to-date beekeepers demand. Gentle, vigorous and hardy, 50c each, one or one hundred.

J. K. Harrison Apiaries
HONORAVILLE, ROUTE 1. ALABAMA

"Quick Service, No Delay"

My Motto

Three-banded queens only
Select Untested Queens

50c each

Any Number

Pure mating, safe arrival and entire satisfaction guaranteed. Queens clipped if desired.

Hayneville Apiary Co.
W. E. HARRELL, PROP.
Hayneville, Ala.

QUEENS, 50c

Quality Bred Italian Queens, Now Only 50c Each, Any Number

Good queens demand the merits of progressive beekeepers everywhere. We have shipped thousands of queens this season and they are giving universal satisfaction. We are prepared to give you return mail service on queens for balance of season. The opportunity is yours, requeen at the lowest possible cost, but be sure of the highest quality. Every queen guaranteed to be satisfactory and to give you the service you have a right to expect or your money back.

Package Bees in season. Low prices, quality and service and pleased customers is our motto.

York Bee Company, Jesup, Georgia

Thrifty Queens

:: Since 1892 ::

50c each

In lots of 5 or more; smaller lots, 60c each.

Safe arrival is guaranteed in the U. S., Canada and Cuba. Pure mating and perfect satisfaction is guaranteed the world over.

Over a third of a century of careful breeding and selecting insures you of **THRIFTY** three-banded Italian queens that please. An output of thousands of queens per month assures you of good delivery.

Let **THRIFTY** queens help you build stronger colonies. Place your order today.

W. J. Forehand & Sons

Fort Deposit, Ala.

Guaranteed to Please

Moore's Strain

Away back in 1879 I commenced rearing Italian queens with the object of improvement constantly in view.

By careful selection during all these years I have succeeded in producing a strain of three-banded, leather-colored Italian bees, known as **MOORE'S STRAIN OF ITALIANS**, which has won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Mr. A. K. Whidden, San Jacinto, Cal., says: "In 1913, 80 per cent of the bees in this district died of European foul brood. I had an apiary of 60 colonies headed by daughters of your queens in which I did not lose a colony, and in 1914 they made 360 pounds per colony.

"In 1917 I bought 12 queens of you, and introduced them to diseased colonies. Four of them became too weak to recover, and they all got rapidly worse until it looked impossible for any of them to recover. In eight of them, as soon as the young bees from your queens began to hatch, the disease began to disappear. They cleaned up and stayed clean."

Untested queens, $1.00; 6, $5.00; 12, $9.00. Select untested, $1.25; 6, $6.00; 12, 11.00. Safe arrival and satisfaction guaranteed. Circular free.

I am filling orders by return mail.

J. P. Moore

Morgan - - Kentucky

SOUR HONEY

(Continued from page 547.)

in dandylion wine and this mule kick gets into the hives through the nectar carried in. He says there is no doubt about it, for old Mose Smith and his wife as has made dandylion wine out of that mule pasture for 40 years have got 19 children and some of 'em are nice and yellow like queens orter be and these queens would be just as prolificate as old Mose and his wife are. Ab says he can see Mr. Days' lojic is o. k. and has sent to him for a ample sample of the mule dandylion wine

(Continued on page 549.)

Caucasian Queens

By return mail, by air for long distance. Caucasians are the gentlest race of bees known, and are more prolific than Italians, says U. S. Bulletin No. 447. Our breeding queen is a daughter of an imported queen direct from Tiflis, and her bees are the gentlest of the gentle. Untested, 1 to 5, $1.50 each; 6 to 11, $1.30 each; 12 to 24, $1.25 each; 25 to 49, $1.00 each; 50 and over, 90c each. Tested, $3.00 each. Select tested, $4.50 each. Safe delivery and satisfaction guaranteed.

Bolling Bee Co.

Bolling Alabama

Northeast Texas Queens

CHOICE THREE-BAND ITALIANS

These queens will equal the best on the market. Select young laying queens, 50c each. All orders filled by return mail. If large lots are wanted write for prices.

No disease. SAFE arrival and satisfaction guaranteed.

O. D. Rivers

POWDERLY TEXAS

SOUR HONEY

(Continued from page 548.)

to make sure afore he lends his presteege of his name to the plan. Mr. Days, it all depends on the sample and remember me and Ab both have got to sample the sample and perhaps a good many times afore we can decide.

* * *

With all the rest it's been so orful wet here that the lawns are growin faster and faster and faster. OLD DRONE.

P. S.—Things are a lot better. Me and Ab have got a hold of some of the best plans we ever had. We are takin our wives into it. O. D.

Thrifty 50c *Queens* each

A NO. 1 ITALIAN QUEENS
BY RETURN MAIL

Safe arrival and satisfaction guaranteed in U. S. and Canada. Nine years of careful breeding assure you of good queens.

N. Norman, Ramer, Ala.

Reliable Queens

Young, vigorous. pure three-banded Italians, bred for service. They are reared in strong colonies and mated from strong nuclei. We can fill orders promptly.

Safe arrival and satisfaction guaranteed.

Select young laying queens, 75c each; six to fourteen, 70c each; fifteen or more, 65c each.

Write for prices on larger quantities.

Package bees for increase, 2 lbs. with young laying queen, $2.50; 3 lbs., $3.50. Express or mail shipment.

1000 colonies and 1200 nuclei to draw from.

Seventeen years' experience as extensive shippers.

You will be pleased with the quality of the bees we supply.

W. D. Achord

Fitzpatrick : : Alabama

JENSEN'S

"Magnolia State" Queens, 50c each

Requeening time is not only NOW, but any time good or better queens are needed. Use nothing short of the best procurable. The labor and expense is the the same, but results may vary much.

Reputation, experience and volume is the combination that makes possible our enviable position among queen breeders that each year is commanding the attention of progressive beekeepers everywhere.

Join the throng and find out to your own satisfaction just how good queens can be bought for so little money. For ten years we have been breeding up this strain of Pure Three-banded Italians until through compliments of customers and the expressions of other authorities, we are confident we have a strain that has superior merit, and from now and henceforth will be known as our

"MAGNOLIA STATE" QUEENS

Every queen guaranteed PURELY mated. Shipped on invert sugar candy in large six-hole cages, with government health certificate. Unless orders are very large, shipments are usually made within 12 hours.

Jensen's Apiaries, Crawford, Miss.

Honey Containers

Season 1929

FRICTION-TOP PAILS (F. O. B. CARS LANSING)

	24	50	100	200	500	1000
2½-lb. cans	$1.10	$2.00	$3.80	$7.50	$17.75	$34.50
5-lb. pails	1.85	3.30	6.50	12.75	31.00	60.00
10-lb. pails	2.50	4.85	9.50	18.50	45.50	88.00

FRICTION-TOP PAILS (F. O. B. CHICAGO)

	100	200	500	1000
2½-lb. cans	$3.25	$6.50	$15.75	$31.00
5-lb. pails	5.70	11.40	27.40	53.50
10-lb. pails	8.00	15.75	39.25	76.75

FRICTION-TOP PAILS (BY PARCEL POST, POSTPAID)

Postpaid to points within 150 miles of Lansing, Michigan.

	1 doz.	2 doz.	4 doz.
2½-lb. cans	$0.70	$1.30	$2.50
5-lb. pails	1.10	2.20	4.25
10-lb. pails	1.55	3.05	6.00

FIVE-GALLON CANS (F. O. B. CARS LANSING)

Packed in reshipping cases, two cans to the case.

Per case.	10 cases.	25 cases.	50 cases.	100 cases.
$1.10	$10.50	$25.00	$48.50	$96.00

F. O. B. CARS FACTORY (DETROIT OR CHICAGO)

$9.00	$22.00	$43.25	$85.00

FIVE-GALLON CANS IN BULK (F. O. B. LANSING)

Per can, $0.40; 6 cans, $2.30; 12 cans, $4.50; 50 cans, $17.50; 100 cans, $34.00
F. O. B. Detroit or Chicago, per crate, 50 cans.....$15.00

TALL CLEAR GLASSWARE (F. O. B. CARS LANSING)

	No. in case.	Ship. wt.	Per case.	10 cases.	25 cases.	50 cases.
3-oz. jars	48	11 lbs.	$1.25	$11.50	$27.00	$52.00
5-oz. jars	24	10 lbs.	.80	7.50	17.50	34.00
8-oz. jars	24	12 lbs.	.95	8.75	21.00	40.00
16-oz. jars	24	19 lbs.	1.15	11.00	26.25	51.00
32-oz. jars	12	15 lbs.	.85	8.25	19.25	37.75

CORRUGATED PAPER SHIPPING CASES (F. O. B. CARS LANSING)

	5	10	50	100
Shipping cases for 4¼x4¼x1⅞"	$1.10	$2.00	$9.00	$17.50
Shipping cases for 4¼x4¼x1½"	1.00	1.85	8.50	16.50
Shipping cases for 4 x 5 x 1⅜"	.90	1.70	8.00	15.25

Silicate of Soda for sealing above cases, 1 gallon, 60 cents; 1 quart, 20 cents; ½ gallon, 35 cents. 3-inch gummed tape, per roll, 85 cents.

"A" GRADE TIN PASTE

The "A" grade tin paste we are selling this year is of much higher quality than we have had before. It is suitable for either tin or glass containers. 1 pint, 30 cents; 1 quart, 55 cents; 1 gallon, $1.75. Postage extra.

HONEY LABEL CATALOG

Fine Honey and a Handsome Label make a combination that the average honey users can not resist. You produce the honey; let us produce the label for you. Then display your goods and see how quickly your honey moves. Send for Honey Label Catalog.

M. H. Hunt & Son

510 N. Cedar St. Lansing, Mich.

Show What You Pack

A Wonderful Package
to Sell Honey

CLEAR WHITE GLASS
EITHER ROUND OR PANELED JARS
BEAUTIFUL SHAPES

BOTTLE YOUR HONEY IN
TYGART VALLEY GLASS AND
SEE THE DIFFERENCE

Tygart Valley Glass Company
Washington, Pennsylvania

Pack in Glass

Superior Italian Queens

50 CENTS EACH

ANY NUMBER

IF THEY ARE NOT AS GOOD AS MONEY CAN BUY,
WE WILL BUY THEM BACK.

250 Queens Per Day

The Stover Apiaries

Tibbee Station, Miss.

Telegraph Office, Mayhew, Mississippi

Why Use Root Queens?

1. Our three-banded Italian queens are produced by experienced queen-breeders who understand the business.

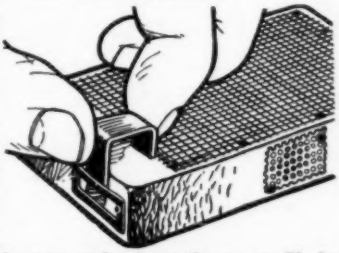
2. We select our breeding queens from hundreds of our honey-producing colonies, therefore only choice breeding queens are used.

3. Our queens are shipped to customers in our new mating and introducing cages that help to insure safe introduction.

4. We make prompt shipment or tell customer why.

NEW MAILING AND

—DIRECTIONS FOR INTRODUCING—



Before giving this queen to a colony be sure it is queenless. It is best not to remove the old queen until the time of introducing the new one; but if several days have elapsed, be sure to remove every queen-cell. Place cage on top or between frames; if on top of the frames put the wire cloth down next to the bees. The bees should gnaw away the pasteboard nailed over one end, eat out the candy left in cage, and release the queen. If she arrives dead, return her in cage, notify us and we will replace.

N. B.—Remove U-shaped tin on end of cage as illustrated. This permits bees from colony to enter cage through queen-excluding zinc after candy is eaten out of hole, and helps release queen through opposite end of cage.

INTRODUCING CAGE

We now use this cage for sending Root Queens to our customers

	1	10	50	100
Untested . . .	$1.10 ea.	$1.00 ea.	$0.85 ea.	$0.75 ea.
Tested	2.25 ea.	2.00 ea.		
Select Tested	5.00 ea.			

Customers outside U. S. A. and Canada must add 25 cents per queen to above prices to cover extra postage and cost of larger cages.

Note: Our **UNTESTED QUEENS** are young, fertile queens reared this season, that prove to be approximately 99 per cent purely mated.

Our **TESTED QUEENS** are older queens guaranteed purely mated.

Our **SELECT TESTED QUEENS** are choice tested queens that might be used as breeding queens, although they are not tested for breeding purposes.

The A. I. Root Co., Medina, Ohio

The Brock Store
Decatur, Ind.

A. G. Woodman Co.
Grand Rapids, Mich.

The Carl F. Buck Co.
Walla Walla, Wash.

Mountain States Honey
Prod. Ass'n.
Boise, Idaho

Colorado Honey
Producers Ass'n.
Denver, Colorado

Lone Star Bee
Supply Co.
San Antonio, Tex.

Superior Honey Co.
Los Angeles, Calif.
Manhattan, Mont.

Dadant & Sons
Hamilton, Ill.

G. B. Lewis Co.
Watertown, Wis.
Albany, N. Y.
Sioux City, Ia.
Lynchburg, Va.
Texarkana

J. W. Reid
Uvalde, Tex.

Burrows Hdwe. Co.
Beeville, Tex.

Standard Lumber
Co.
Winona, Minn.

Magill & Co.
Fargo, N. Dak.

Sioux Honey Ass'n
Sioux City, Ia.

North Dakota Bee
Supply Co.
Moorhead, Minn.

A. I. Root Co. of Iowa
Council Bluffs, Ia.

A. I. Root Company
St. Paul, Minn.
Chicago, Ill.
San Antonio, Tex.

The Schultz Honey Co.
Ripon, Wis.

Fred W. Muth Co.
Cincinnati, Ohio

Distributors at 26 Points Constantly Winning New Friends With Continental Honey Cans

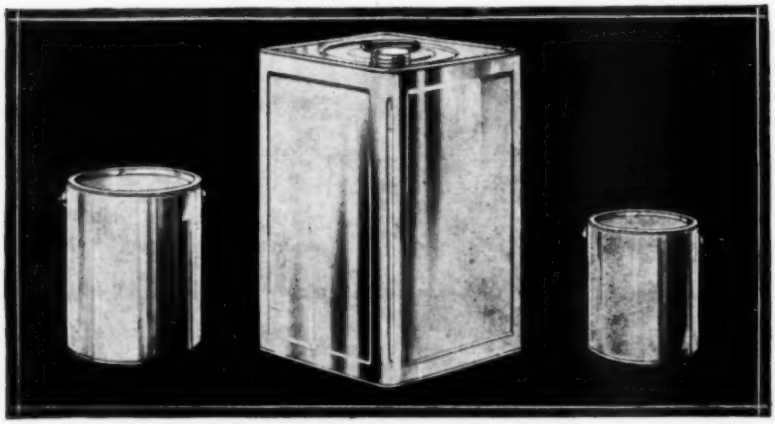
Continental Honey Cans had to be good to get where they are. These clean, bright, tight, dependable cans are available from reliable distributors strategically located at 26 points.

Not only are you assured of prompt shipments, but of cans that make a strong appeal to your customers, and insure your honey reaching them in excellent condition. Any of the distributors above will gladly send you samples, prices and full particulars.

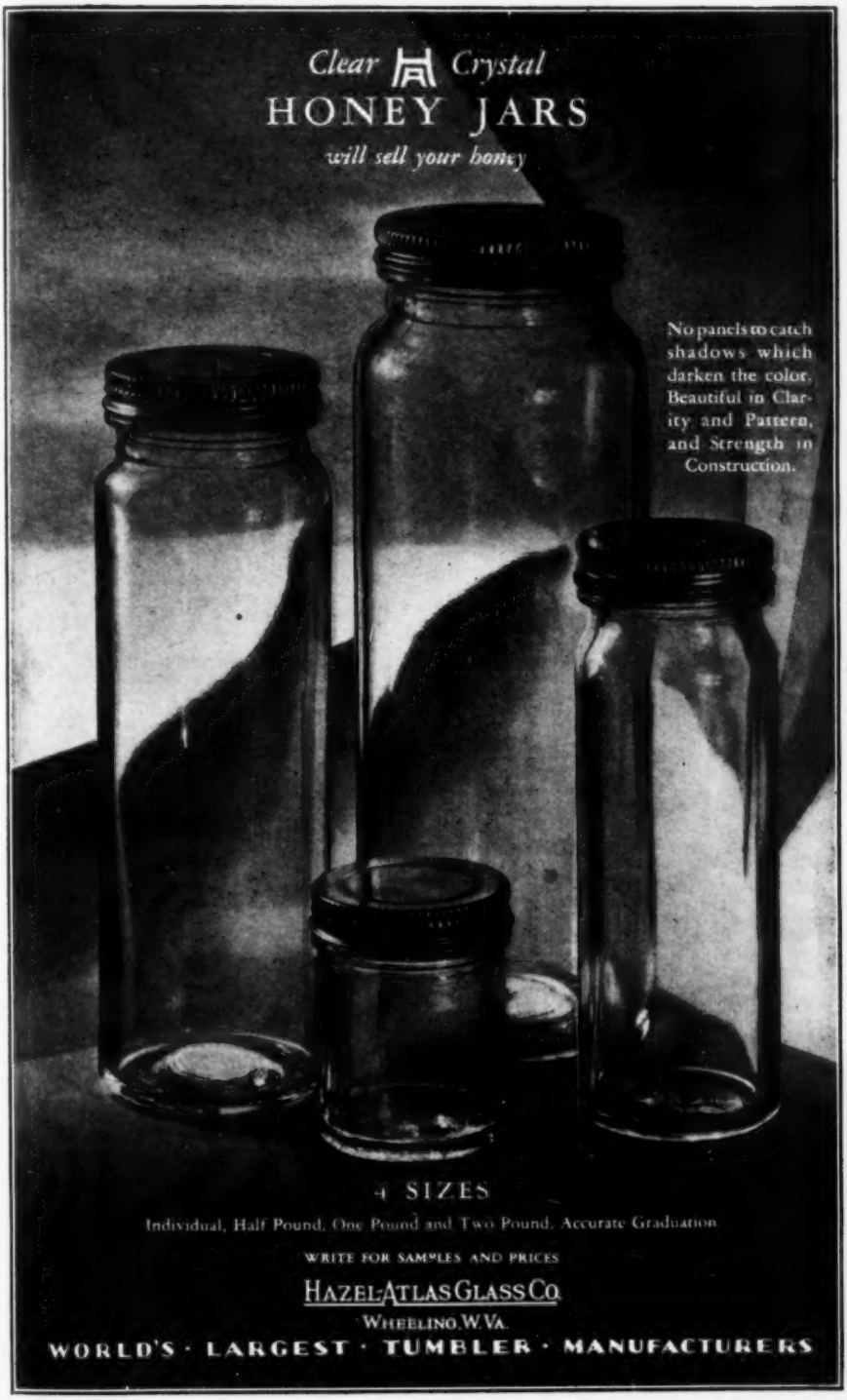
CONTINENTAL CAN COMPANY, INC.

4622 West North Avenue, Chicago, Ill.

DETROIT JERSEY CITY LOS ANGELES E. ST. LOUIS CINCINNATI



"It's Better Packed in Tin"


Clear Crystal
HONEY JARS
will sell your honey
No panels to catch shadows which darken the color. Beautiful in Clarity and Pattern, and Strength in Construction.
4 SIZES
Individual, Half Pound, One Pound and Two Pound. Accurate Graduation.
WRITE FOR SAMPLES AND PRICES
HAZEL-ATLAS GLASS CO.
WHEELING, W. VA.
WORLD'S · LARGEST · TUMBLER · MANUFACTURERS

$8.00-Electrify Your Honey Sales-$8.00

$8.00 Special August Only

Griswold

Patent Applied For. No. 3 C.

SPECIFICATIONS—

1—Three to nine grades and prices of comb and 6 to 12 glass-tin extract.
2—Front 17", depth 14", height 24". Weight, flat, 10 lbs. Complete, 20 lbs.
3—Glass single: 1—13⅝x15", 2—9¼x15". Double: 2—12½x13⅝", 1—11x11".
4—Capacity, 60 beeway sections, 72 plain, carries $40.00 honey at retail.
5—Spring hinged automatic stop open doors, folding rack, carton pocket.
6—Built of the best materials, sprayed white duco finish—enduring service.
7—Fly, dust, dirt and careless-handling proof, always displaying fully.
8—Latest flash system, beautifully illumines both jars and sections.
9—Glass front—and sides and shelving instantly removable for cleaning.
10—Last word in electric display and a marvel of efficiency in honey sales.

COMB HONEY—

Sales methods mostly continue to slide along slovenly, heedlessly, carelessly and wastefully in the same old grooves and ruts our grandfathers blundered along in a century ago.

WHILE—

Manufacturers and distributors of bread, pastries, confections, cigars, cookies, nuts, chewing gum, canned and packaged food products, make and provide their grocers and distributors with special display and sales cases temptingly inviting the public to buy in a clean and sanitary way just such as we are offering you here today.

YOU—

Owe it to yourself and your business as a honey producer to place your honey, "the world's greatest health sweet and food," before the public in the best possible manner, that will increase your sales, bring better prices, stabilize the market and teach more people to eat more honey.

ELECTRIFY—

Your honey sales methods at your stand, your grocers, your county and state fair, with at least one of our No. 3C cases shown above for the first time. It's new, unique, modern, easily cleaned and will more than triple your honey sales, both comb and extract.

GLASS—

Is now cheap everywhere, so we are quoting this case in flat only, complete with everything but glass at but $8.00 each with 10 ft. of cord, long bulb, flasher, plug, nails and screws for thirty days only. Glass will cost you $1.50 or less, and about 2c per day to operate with flasher.

WRITE—

For illustrated 7-page circular showing all our cases priced from $4.00 up.

Griswold Honey Company

Pioneers, developers and manufacturers world's best honey cases, plain and electric.

Madison, Ohio, U. S. A.

Bee supply manufacturers, get our special offer, save money, boost honey sales.